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NAVY DEPARTMENT

MANUAL OF ADVANCED BASE DEVELOPMENT AND MAINTENANCE

OpNav 30-11-A1 (Revised)

APRIL, 1945

UNITED STATES GOVERNMENT PRINTING OFFICE
WASHINGTON · 1945

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Foreword to Preliminary Edition, July 1943

THE vital importance of advanced bases in supporting combat operations of the United States Armed Forces and the specialized nature of the problems involved emphasize the necessity for an advanced base manual.

In the preparation of the preliminary edition of the *Manual of Advanced Base Development and Maintenance,* the editors have drawn upon the combined knowledge and judgment of cognizant officers in various fields. It is intended to be a useful guide for Naval personnel detailed to advanced base duties, particularly junior officers with little previous Naval experience. The Manual is issued for the purpose of gathering pertinent information between one set of covers, with full realization that local conditions vary so widely that not all suggestions will be applicable to all situations. Therefore, it should be used with intelligent discrimination; it is not to be construed as a directive nor as an official statement of policies.

It is believed that it will also provide the forces afloat, the shore establishment and the other armed forces with sufficient information as to the nature of advanced bases to enable them to cooperate effectively in this work.

The imperfection of this preliminary edition is recognized, and suggestions for its improvement will be welcomed by the Office of the Chief of Naval Operations. A revised edition will then be published as soon as practicable.

It is hoped that this Manual will assist all of us to improve the quality of our advanced bases and thus give to our combat forces the type of support they deserve.

H. H. GOOD,
Rear Admiral, U. S. Navy,
Director, Base Maintenance Division,
Office of the Chief of Naval Operations.

Foreword to Revised Edition, April 1945

Two additional years of war have emphasized the vital role played by Naval advanced bases for support of the Fleet in forward and combat areas. In July of 1943, very few Naval officers had had duty both at advanced bases and in logistics planning. Ideas that were translated into plans for the early bases have now had the test of long and hard experience. We have advanced far across the Pacific since mid-1943, establishing full-scale fleet and air bases as we moved forward. And we have also advanced far along the path of knowledge. The major bases now being set up are in no sense experiments. They represent war-seasoned judgment and all the "know how" the fighting Navy can build into them.

The preliminary edition of this Manual was the first attempt to blend the practical experience of outstanding advanced base officers with the thinking and knowledge of logistics officers, so as to furnish a balanced guide for Naval personnel detailed to advanced base duty.

Over 3000 copies of the preliminary edition have been distributed to training activities and individual officers. The demand for the Manual has been continuous. During the past twenty months, the Base Maintenance Division has benefited by many suggestions for revision of the Manual received from advanced base officers, and by the reports of liaison officers who have accompanied major units to their destinations. Much has been learned since 1943. Many procedures have changed. New devices have been produced. New tactical developments have been put into effect.

As foreseen when the Manual was originally issued, the time has now arrived for a revised edition, reflecting insofar as it can the latest and best judgment on advanced base problems. The Base Maintenance Division has again drawn on the knowledge and experience of seasoned officers in other divisions of Operations and the Bureaus, as well as officers who have sweated it out on Pacific islands or made the wheels go round in other theaters of command.

It has been found necessary to rewrite the greater part of the text completely, and to add whole chapters of entirely new material. In so doing, some of the original subject matter has had to be omitted, even though valuable. The alternative would be a book of such great length as to discourage the reader.

This revised edition is divided into two parts: the first devoted to Base Development, including personnel training; and the second to Base Maintenance—or keeping the established base going. This second part includes a chapter on Roll-Up and Salvage, for the time when the Base is no longer essential to the support of Naval Forces.

When the North African and European theaters of the war are closed, emphasis will shift again to the Pacific, where the United States Navy has had its greatest problems and is in sight of its greatest victories. In issuing a new book at this stage of the war, it is believed that a contribution can be made to the efficiency and dispatch of the final phases of combat. It is also hoped that this Manual will stand for some years to come as a textbook and guide for the first generation of officers of the U. S. Navy who will learn their profession in school and not in combat, from the lessons of these most gallant years in American history.

H. H. Good,
Rear Admiral, U. S. Navy,
Director, Base Maintenance Division,
Office of the Chief of Naval Operations.

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PART I

ADVANCED BASE DEVELOPMENT

U.S.S. HONOLULU, *damaged by a Jap aerial torpedo, receives first aid from auxiliary craft off Leyte, P. I.*

Chapter I

GENERAL DISCUSSION OF ADVANCED BASES

101. Mission

The primary mission, and by far the most important function, of advanced bases is to support operations of air, sea or land forces. Although many men and much material must be used to establish and maintain bases as such, the primary purpose must never be lost sight of on that account. When a base ceases to be necessary to the combat forces the time for disestablishment is at hand. Secondary missions of an advanced base are: to deny an advanced area to the enemy; and to establish a staging point for further advances.

102. Nature

All advanced bases share two general characteristics: First, they are located in or near forward areas — close enough to offensive operations to give effective support to the combat forces. Second, they are operated initially under physical discomforts and limitations of equipment which place a high premium on the adaptability and ingenuity of their personnel. Beyond these characteristics they differ widely in size, topography, climate, resources and many other details. Consequently it behooves anyone assigned to an advanced base to acquaint himself with the detailed nature of the base to which he is going.

103. Planning

Planning, particularly initial planning, must be painstakingly detailed. No plan can be expected to meet every contingency, but the closer that ideal is approximated the more successful will be the operation and the pleasanter will be life for all concerned.

In areas of joint Army and Navy operation, basic plans have established certain logistical responsibilities of the Army to the Navy, and vice versa. For example, the Army may supply food for all services at a base, or in an area, while the Navy supplies petroleum products for all services. All advanced base officers must be thoroughly familiar with the joint plan for the area in which their units are to be located. Joint planning and close liaison between officers of the respective services are essential to prevent duplications and snarls, which will otherwise surely occur.

While planning has many ramifications, in general these will revolve around three main points:

(a) *Material and Personnel.*—Estimate your needs liberally, but remember that anything unnecessary puts added strain on already overloaded manufacturing and transportation facilities.

(b) *Echeloning.*—Even if it were possible to ship everything a base needs at once — which it is not — it would not be desirable. Consequently echelons, or groups, of shipping, are established on a basis of required arrival times for the personnel and cargo in such groups. Usually airfield construction equipment, port development and defense installation equipment and accompanying personnel will be in the first echelon.

(c) *Loading and Unloading.*—See that cargo is stowed so that items which must go ashore first are readily accessible, and a smooth flow of material to the beach is possible. Intelligent planning here can materially reduce the turn-around time for vitally needed ships.

104. Unity of Command

On the higher levels the chain of command runs upward from the Base Commander to the Island or Sub-Area Commander. The Island Commander is responsible to the Area Commander who in turn reports to the Theater Commander. Under the principle of unity of command these officers may be Army, Navy or Marine Corps, and will generally have units of all these branches of service under their command.

The commander responsible for the defense of a

base directs the operations of all troops, shore batteries, aviation units and Naval Local Defense units attached to the base. Officers commanding these various organizations must regard themselves as integral parts of the base organization irrespective of their branches of service.

The administration of advanced bases is the responsibility of the Area Commander and may be handled by him directly, or through the Service Force.

105. Unauthorized Diversions

One of the important causes of confusion in logistic supply of combat areas has been the diversion of material while en route to destination.

The nature of combat operations and the changes of long-range plans that are caused thereby make certain diversions of ships and material imperative. However, such changes should be made only on the authority of the Area Commander, or his authorized subordinate.

Military and shipping problems make it impossible to load all material for advanced combat bases on ships sailing directly to the most advanced destination. If the commander of a base in a rearward or relatively quiet zone diverts or steals material destined for an advanced base he produces the same effect as if that material were sunk by enemy action. In many cases it takes longer to replace such stolen material than if the material had been sunk by the enemy. Sinkings are known to the Navy Department and replacement can be quickly initiated; theft is concealed and comes to light only when the consignee, in understandable desperation, sends in frantic dispatches over an already overloaded communication system. In many cases active combat operations have been hindered by such unthinking sabotage.

106. Work of Op–30

In the Navy Department basic planning is a function of Cominch, and of the Logistics Plans Division (Op–12) and the Aviation Planning Division (Op–31) of the Office of the Chief of Naval Operations.

Procurement of personnel and material is the responsibility of the various Bureaus.

Other Divisions of CNO have specialized operating fields, including Naval Intelligence (Op–16), Communications (Op–20), Fleet Maintenance (Op–23), Electronics (Op–25), Naval Air Transport (Op–36) and Naval Transportation (Op–39).

The Base Maintenance Division (Op–30) coordinates and watches the progress of the activities of all those organizations as they relate to advanced bases. Here the basic plans directives of the planning units are expanded into detailed directives to the Bureaus and to other Divisions of CNO. It is the responsibility of Op–30 to see that the requirements of advanced bases are met adequately and in proper time.

"Follow that LCT!"

Chapter II

DEFINITIONS AND ABBREVIATIONS

201. Definitions

The following are definitions of terms and explanations of abbreviations frequently used in connection with advanced base matters.

202. Commands and Offices

Commander Western Sea Frontier (ComWesSeaFron).—In addition to the customary duties of commanders of sea frontiers, ComWesSeaFron is charged with the coordination of all Naval activities and functions on the Pacific Coast, including the Eleventh, Twelfth and Thirteenth Naval Districts. The Commandants of these Naval Districts and all Naval, Marine Corps and Coast Guard agencies located and operating therein report to him. In carrying out his duties, ComWesSeaFron has the status of a Deputy Cominch and Deputy CNO. He is authorized to place existing agencies of the Navy Department (within the limits of the Eleventh, Twelfth and Thirteenth Naval Districts) in the organization of the Western Sea Frontier as may be best suited for the performance of his duties. He reports to CinCPac.

Director Pacific Division, Yards and Docks (DirPacDocks)

Director Atlantic Division, Yards and Docks (DirLanDocks)

Director Alaskan Division, Yards and Docks (DirAlDocks)

The Directors inform and act for the Chief of the Bureau of Yards and Docks in their respective areas in connection with BuDocks matters such as:

(*a*) Handling, screening and approving requisitions.

(*b*) Expediting shipments.

(*c*) Advising advanced bases on disposition of surplus.

(*d*) Assisting in assignment and movement of Seabees.

(*e*) Construction at advanced bases.

(*f*) Acting as clearing point for required appraisals of advanced bases.

Director Advanced Base Office, Atlantic (*DABOA*).—Atlantic coastal representative of the Chief of Naval Operations for advanced base matters, authorized to act without reference to higher authority when necessary or when established policies are controlling. In general performs the following duties:

(*a*) Through the District Commandants directs, controls and unifies the efforts of the various agencies dealing with advanced base matters within the several districts, so as to effectuate the proper and speedy training of personnel and the assembly, inspection, testing and preparation of material for shipment from the various coastal loading ports to advanced bases.

(*b*) By means of frequent conferences and joint action unifies the effort in advanced base matters of all special coastal representatives whom the Bureaus, in their discretion, may appoint to decentralize the control of the supply of material and personnel.

(*c*) Confers with the Naval District Commandants, Port Directors, Service Force Sub-Commanders and others as may be appropriate and necessary to insure cooperative effort in the movement of material and personnel to advanced bases.

Base Service Units (*BSU*). — Activities of the Naval Districts in which they are located. Perform such duties in connection with advanced base matters as the District Commandants require, such as:

(*a*) Consulting with the Officer in Charge of the Naval Supply and Advanced Base Depots in their localities, and assisting them to the extent permitted by the Base Service Unit's limited personnel in all matters pertaining to personnel and materials for advanced bases.

(*b*) Assisting, if requested, the Port Director

or the designated loading officer, in formulating plans for loading cargo and embarking personnel for advanced bases.

(*c*) Keeping the Chief of Naval Operations and the Director, Advanced Base Office Atlantic or the Commander Western Sea Frontier informed as to the progress of advanced base assemblies and shipments.

The West Coast Base Service Unit (WCBSU) has been absorbed by ComWesSeaFron and performs its functions as an integral part of his establishment.

203. Establishments

Naval Operating Base (*NOB*).—A general term applied to a main Fleet base having related or unrelated activities grouped together for the purpose of military control.

Naval Station (*NavSta*).—Comprises one or more activities and may or may not form a part of a larger Naval base.

Naval Section Base.—An activity designed to support vessels of the Naval Local Defense Forces and Inshore Patrol, and to provide housing and recreation facilities for the crews.

Naval Air Center.—Comprises several subordinate commands as follows: Naval Air Stations with or without auxiliary air facilities and outlying fields; Auxiliary Air Stations and such other activities as may be grouped or established therein, including Marine Corps and Coast Guard Air Stations.

Naval or Marine Corps Air Station (*NAS*) (*MCAS*). — Provides complete operating, testing, overhaul and personnel facilities in accordance with the requirements of the Naval Aeronautic Organization.

Naval Auxiliary Air Stations (*NAAS*).—Operating as separate commands grouped under Naval Air Centers, provide facilities similar in character to Naval Air Stations but less extensive and requiring logistic support therefrom.

Naval Air Facility (*NAF*).—An activity not subordinate to another shore facility, which provides operating facilities for the fleet or sea frontier aircraft to meet special requirements, under conditions where the Navy (a) does not have exclusive use or control or (b) does not make continued use of the facilities. (Construed also as emergency airport or emergency landing area only.)

Naval Auxiliary Air Facility (*NAAF*).—Provides facilities similar to Naval Auxiliary Air Stations, but subordinate to a Naval Air Station.

Fueling Station (*FS*). — Provides bunker fuel, Diesel oil, aviation and motor gasoline, either from shore storage or from storage afloat.

204. Areas

Combat Area.—That area in which our forces are in actual combat contact with the enemy. The control of this area is in dispute, subject to constant attack and counterattack.

Forward Area.—That part of the theater in the rear of the Combat Area which is not the immediate scene of major combat operations but is liable to either minor or major attack. This area contains the combat elements, advanced logistics establishments and lines of communication required for the immediate support of the Combat Area.

Rear Area.—That part of the theater to the rear of the Forward Area, containing lines of communications, elements and installations of the service of supply, and other logistics installations required for the support of operations in the theater and for the reorganization and rehabilitation of combat forces.

Staging Area (*SA*).—A general locality or harbor for assembly of an amphibious ship-borne or air-borne force, preparatory to sortie against a specific objective.

205. Advanced Base Units

Lion.—A large Advanced Base Unit consisting of all the personnel and material necessary for the establishment of a major all-purpose Naval base for support of the Fleet. Aviation facilities are not included. For its own use it contains adequate harbor defense, communication, supply, disbursing, medical, ordnance and base maintenance facilities.

Cub.—An Advanced Base Unit consisting of all the personnel and material necessary for the establishment of a medium-sized advanced fuel and supply base. It does not contain ship repair and aviation facilities. For its own use it contains adequate harbor defense, communication, supply, disbursing, boat repair, medical, ordnance and base maintenance facilities.

Acorn.—An Advanced Base Unit consisting of all the personnel and material necessary for the establishment of an advanced air base. Without the CASU or PATSU the Acorn can maintain the base facilities

in operating condition and service casual planes. For its own use as well as for the flight crews and CASU or PATSU it contains adequate communication, supply, disbursing, medical, ordnance, housing and messing facilities.

CASU.—A trained shore-based Combat Air Service Unit whose function is to support the flight operations of a shore-based Carrier Air Group or shore-based multi-engine squadrons. A CASU is a personnel unit. It has no equipment but depends on the equipment and facilities of an Acorn. CASUs are separately designated in accordance with the type of planes they are designed to service.

PATSU.—A detachment of the Fleet Air Wing Headquarters Squadron which performs the functions of that Squadron for a detached part of the Wing. PATSUs are being re-formed as CASUs.

Fleet Air Wing Headquarters Squadron (FairWingHedRon).—All enlisted personnel of a Patrol Wing who are not part of the combat flight crews. It also includes all officers not members of the wing staff or the combat flight crews. It may include certain officers of the wing staff who are performing additional duties in the headquarters squadron.

Gropac.—A commissioned Naval organization designed to install and operate harbor and waterfront facilities and to provide certain harbor defenses for an advanced base. It normally provides for the unloading of ships, installation and maintenance of navigational aids, piers, moorings, net defenses and underwater sound detection, the repair of small craft and harbor equipment, the operation of a harbor defense patrol and the provision of a boat pool for use within the harbor. It provides, also, for its own administrative, communication, medical and housing needs.

Gropacs vary materially from each other in size and composition, since each is individually designed to meet the needs of a particular island or area.

Standard PT Base Unit.—Complete base facilities for the operation of one squadron of PT boats. Usually does not contain major engine overhaul facilities.

Standard Landing Craft Unit (SLCU).—Provides landing craft and personnel to accommodate a battalion landing team in training or combat. The maintenance personnel is adequate for normal upkeep purposes.

Aviation Repair Unit (ARU).—Complete base facilities for the complete repair and test of aircraft and the overhaul of propellers and accessories. It will not overhaul engines.

Aviation Repair and Overhaul Unit (AROU).—Complete base facilities for the overhaul of 100 aircraft engines per month, the repair, modification and test of aircraft, aircraft engines and all classes of aeronautical material.

206. Repair (Aviation)

Major Overhaul.—The term applied to the complete disassembly of an airframe, engine or accessory to as thorough an extent as required to permit inspection of every component part.

Reconditioning.—The term applied to the repair or replacement of those structural and component parts as required to place an aircraft in a state where it can perform the missions for which it is designed, so that major overhaul will not be required for the length of time normally considered as between commissioning and major overhaul.

Minor Repair (Aircraft).—The term applied to the replacement of a major component or a structural repair only, without other work on the aircraft being accomplished. Minor repairs will not change the aircraft overhaul turn-in date. Work requiring less than sixteen man hours on only single components is considered routine upkeep.

Minor Repair (Engine or Accessory).—The term applied to the restoration of a damaged or nonoperating part or accessory to the original operating condition without completely disassembling and inspecting. If damage is extensive enough to require complete disassembly and inspection, major overhaul is required.

Modification. — The term applied to changing existing airframes, engines or accessories so that airframes, engines or accessories will perform their intended function to a better degree than as originally designed.

Routine Upkeep.—The term applied to the inspection of an airframe, engine or accessory when and as required, including adjustments made thereon as necessary. (In addition when applied to aircraft, the replacement of accessories.)

Servicing.—The term applied to the preparation of an aircraft for flight. Such preparation involves only the replenishment of consumable items such as fuel, oil, oxygen, food, water, air in tires, ammunition, bombs, and so forth.

Preventive Maintenance. (*Applicable to NATS*).—This is the overhaul or replacement of aircraft component parts before a critical period is reached in order to obtain a maximum flight utilization and reduce major overhaul to a minimum. It includes routine engine changes, propeller, instrument, accessory and radio overhaul but does not include engine overhaul. Preventive maintenance will be conducted according to the instructions contained in the NATS manual.

Arming and Rearming. — An operation that replenishes the prescribed stores of ammunition, bombs and other armament items for an airplane, including replacement of defective ordnance equipment, in order to make the plane ready for combat service.

207. Depots

Advanced Base Depots (*ABD*).—Established by the Bureau of Yards and Docks at various points in the United States to handle BuDocks materials and equipment incidental to the construction of advanced bases, the outfitting of Construction Battalions, and the replacement of items for established bases. Each of these Depots is an activity of the Naval District in which it is located.

Advanced Base Sections, Inland Supply Depots.—The Bureau of Supplies and Accounts has established Advanced Base Sections at the Naval Supply Depots. These Advanced Base Sections will receive, store, inspect and test if necessary, pack for export shipment, and ship when required, materials under the cognizance of all Bureaus intended for subsequent movement to advanced bases.

Naval Supply Depot (*NSD*).—A major activity designed for the receipt, storage, maintenance and supply of Naval material.

Mine Assembly Depot (*MAD*).—A Naval shore activity providing facilities for storing, loading, assembling, repairing and issuing all types of Naval (including aircraft) mines.

Marine Corps Base Depot (*MCBD*).—An activity established for the reception, classification, storage, issue and salvage of supplies necessary for the equipment, maintenance and operation of Marine Corps forces. This may be supplemented by Intermediate or Field Depots in Forward Areas for the close support of Combat Troops.

208. Functional Component Catalogues

(a) *The Catalogue of Advanced Base Functional Components.*—A publication issued by CNO (Op–30) describing for the use of Area Commanders and their planning staffs the various components of personnel and material available for the establishment of Naval advanced bases.

The Catalogue lists the Functional Components usually found at a major all-purpose Naval Base and a Naval Air Station. In addition, it contains other components designed for special purposes which are available upon request but not generally found at a major all-purpose Naval Base or Naval Air Station.

Functional Components are divided into twelve major groups: Administration, Harbor Control and Defense, Communications, Storage Facilities and Consumables, Stevedoring, Ship and Boat Repair, Aviation, Medical, Ordnance, Camp Components, Construction and Public Works, and Miscellaneous. A Functional Component is composed of the technical personnel and equipment necessary for the performance of its task, including workshop, housing, vehicles, boats, office equipment and ninety days' initial supply of shop and office consumables.

A component is not a commissioned unit. Components are grouped together as required, to form such commissioned units as Lions, Cubs and Acorns, or to form an over-all Advanced Base Assembly.

Lions, Cubs and Acorns are standard groups of Functional Components, carefully designed to provide a balanced selection of trained personnel, technical equipment and material necessary to construct, equip, operate and maintain a self-sustaining, specific type of advanced base or Naval Air Station. While such standard units are tactical in the sense that they are fully trained for movement in echelons, or in entirety, to advanced positions, Functional Components, on the other hand, are for logistic purposes from inception to final establishment. The grouping of Components into standard units is not mandatory, but deviations from standard units should be carefully studied so that vital components are not omitted.

(b) *Advanced Base Initial Outfitting Lists (Abridged)—Abridged I.O.L.*—One volume showing all equipment for each component in much more detail than the Catalogue, omitting only itemized lists of minor items such as spare parts, hand tools, office supplies and so on. For planning, and not suitable as a shipping list or ship's manifest. Requests for this publication should be made to CNO (Op–30).

(c) *Advanced Base Initial Outfitting Lists (Detailed)—Detailed I.O.L.*—About 500 volumes, completely itemizing tabulations of the equipment in each component. Designed for the use of those who actually handle the material at depots and at loading and unloading points. Suitable for assembly and shipping purposes, but not for planning. Requests for these lists should be made to CNO (Op–30).

209. Abbreviations

ABCD	Advanced Base Construction Depot
ABD	Advanced Base Dock
ABSD	Advanced Base Supply Depot or Advanced Base Sectional Dock
ACEPD	Automotive Construction & Equipment Spare Parts Depot
AcornTraDet	Acorn Assembly and Training Detachment

AD	Destroyer Tender (An "AD Equivalent" is the shore-based equivalent of the repair facilities of a destroyer tender)
AdComd	Administrative Command
Adm.	Administrative
AFD	Auxiliary Floating Dock
AFDL	Auxiliary Floating Dock, Large
AFTU	Airborne Field Torpedo Unit
ALUSLO	United States Liaison Officer
ALUSNA	United States Naval Attaché
ALUSNO	United States Naval Observer
AOB	Advanced Operational Base
ARD	Auxiliary Repair Dock
ARDC	Auxiliary Repair Dock, Concrete
AROU	Aviation Repair and Overhaul Unit
AS	Submarine Tender
A/S	Anti-Submarine
ATC	Air Transport Command
B	Bomber Field
BaCom	Base Commander
CAA	Civil Aeronautics Authority
COTCLant	Commander Operations Training Command, Atlantic
CTF	Commander, Task Force
CTG	Commander, Task Group
CTU	Commander, Task Unit
D/F	Direction Finder
ETC	Estimated Time of Completion
F	Fighter Field
Fairwing or FAW	Fleet Air Wing
FMF	Fleet Marine Force
FTU	Field Torpedo Unit
HECP	Harbor Entrance Control Post
Hedron	Headquarters Squadron
HF/DF	High Frequency Direction Finder
IntelCenPac	Intelligence Center Pacific Ocean Areas
JICA	Joint Intelligence Center, Africa
JICPOA	Joint Intelligence Center, Pacific Ocean Area
LCU	Landing Craft Unit
LP	Landplane
LTA	Lighter-than-Air
MAD	Mine Assembly Depot
MADS	Marine Air Depot Squadron
MAW	Marine Air Wing
MEIU	Mobile Explosive Investigation Unit
MEOU	Major Engine Overhaul Unit
MRU	Material Recovery Unit
NAAF	Naval Auxiliary Air Facility
NAAS	Naval Auxiliary Air Station
NAB	Naval Advanced Base
NAD	Naval Ammunition Depot
NAF	Naval Air Facility
NAS	Naval Air Station
NATS	Naval Air Transport Service
NLFD	Naval Local Defense Forces
NOB	Naval Operating Base
NSD	Naval Supply Depot
NTS	Naval Transportation Service
OB	Operating Base
PAA	Pan American Airways
PAD	Pontoon Assembly Depot
PhibTrain	Amphibious Training Command
PWSS	Port War Signal Station
RDF or RD/F	Radio Direction Finder
RepComDesPac	Representative Commander Destroyers, Pacific
RepForMaint	Representative Force Maintenance
RMO	Radio Material Officer
RPIO	Registered Publications Issuing Office
SP	Seaplane
SPDC	Spare Parts Distribution Center
TAG	Transport Air Group (Joint Army, Navy & Marine)
VLR	Very Long Range (Aircraft)
YFD	Yard Floating Dock (District Craft)
YP	Vessels, District Patrol
YR	Floating Workshop
YRD	Yard Repair Dock

Chapter III

PERSONNEL AND ORGANIZATION OF ADVANCED BASE UNITS

301. Characteristics Required

The chief characteristics required of advanced base personnel are initiative, common sense, a sense of humor, endurance and a feeling of pride in supporting the combat forces, which is their chief mission. Whether or not these are present to a high degree depends greatly on the Commanding Officer and his interest in the men under him.

302. Welfare and Morale

Many facilities have been developed to help make off-duty hours as pleasant and constructive as possible. Many of these will be of great value in preparing men for eventual return to civilian life. The following are brief descriptions of some of these:

(*a*) *Educational Services Program.* — This program of voluntary education is administered through the Educational Services Section of the Bureau of Personnel. Provides for continuance of high school or college courses, or study of special subjects. The program usually operates in the following ways:

(1) Voluntary classes with voluntary teachers.
(2) Correspondence courses conducted by the U. S. Armed Forces Institute, Madison, Wisconsin (USAFI).
(3) Self-teaching texts issued by USAFI.
(4) War Orientation. Lectures, pamphlets, movies and other material designed to keep personnel informed on the background and progress of the War.
(5) Counsel service. Handled by officers trained in counseling techniques, this service covers questions relating to completion of education and post-war careers.

(*b*) *Training Aids.* Distribution of Training Aids material is largely handled through Training Aids Libraries which are now located overseas at the following bases:

FPO, New York:	*FPO, San Francisco:*
Navy No. 93	Navy No. 128
Navy No. 116	Navy No. 140
Navy No. 120	Navy No. 230
Navy No. 121	Navy No. 3205
Navy No. 122	

From Training Aids Libraries, a collection of films, sound recordings, charts, posters, manuals and special devices on various Naval subjects can be obtained, together with utilization guides and assistance in planning an organized training program for special requirements. Also obtainable are copies of *USN Training Films Catalog of Instructional Recordings* and of the *Monthly Training Bulletins* in which recently issued Training Aids are described. Available for examination and preview are copies of the *Catalog of Training Publications and Training Aids Developments.*

(*c*) *Libraries.*—The Bureau of Naval Personnel supplies libraries for advanced bases. The size of the collection is based on an average of one and a half books per man. Libraries are originally supplied as part of the base recreation component. They will be furnished to other components or activities and replacements will be forwarded upon request of the Commanding Officer to the Bureau. Book collections, although mainly for recreational reading, include some technical books and nonfiction. New books are forwarded monthly to advanced bases.

(*d*) *Recreation.*—Any command unit is eligible for recreational services. The officer charged with handling recreational activities should be thoroughly

familiar with them and with the specific responsibilities of his duties. This knowledge, plus a little ingenuity and a lot of interest, should insure a successful recreation program.

Upon the request of the Commanding Officer of newly activated units the Bureau of Naval Personnel will grant allotments under Appropriation, "Welfare and Recreation, Navy," in approximately the following amounts:

$4.00 per man for complements of.....1 to 100
3.50 per man for complements of....100 to 200
3.00 per man for complements of....200 to 500
2.50 per man for complements of...500 to 1000
2.00 per man for complements of..1000 and over

With these funds, Commanding Officers may procure athletic and recreation material, musical equipment, magazine and newspaper subscriptions and other supplies and services that will contribute to the amusement, comfort and contentment of Naval personnel.

It is advisable for the Commanding Officer to submit a request as early as possible in order that recreation equipment may be obtained prior to departure from the continental United States. For guidance in selecting material, get in touch with the Welfare and Recreation Officer of the Naval District in which the units are assembling. For additional funds to cover replacement equipment for units in the field, requests should be submitted to the Area Commander.

Over 100 items of recreation equipment, including radios for shore-based units as listed in the *Sports and Recreation Catalog,* are carried in eight major Naval Supply Depots and may be requisitioned by the Commanding Officer and charged to allotments granted or paid for from nonappropriated welfare funds. Copies of this catalog may be requested from BuPers. For articles not carried in stock by the Navy, such as periodical subscriptions, requisition should be submitted to the nearest Navy Purchasing Office.

Motion picture projection equipment, both 35mm. and 16mm., is supplied by BuShips in accordance with an authorized allowance list. Activities not so supplied may submit requests to BuShips. Requests involving 16mm. equipment should go via BuPers, Training Division.

Thirty-five mm. entertainment film, supplied by the Navy Motion Picture Service, is obtainable from the nearest Navy Motion Picture Exchange or Sub-Exchange. Sixteen mm. entertainment film, available to activities not equipped with 35mm. projectors, may be obtained from the nearest Navy or Army Overseas 16mm. Motion Picture Film Exchange. Both equipment and film are available to overseas activities without cost.

Recreation facilities should be provided at all major bases to accommodate the activities assigned to the base. Listed below are the major facilities requiring construction:

"It says if we spend too much of our pay here it will upset the economy of the country."

(1) Theaters, either indoor or outdoor, for presenting entertainment, motion pictures and stage performances.
(2) Recreation buildings for enlisted men, which will provide for music, hobbies, library, pingpong, writing, and passive games such as chess, checkers and acey-ducey.
(3) Athletic fields, which have facilities for soft ball, baseball, basket ball, volley ball, horseshoe pitching and other sports.
(4) A Chief Petty Officers' Club.
(5) An officers' club, which should not be constructed until the above-listed facilities have been provided.

Tours of Overseas Entertainment Units of USO-Camp Shows Inc. are scheduled for all Armed Forces in overseas areas. Routing of these units is handled by the Army, but an equitable distribution of performances for Naval personnel is arranged through contact by the Naval Area Commander with the Commanding General of the corresponding area. Notification of the scheduled arrival of a troupe is given by the fleet or area Welfare and Recreation Officer to the local Welfare and Recreation Officers within the area. It is the responsibility of the Welfare and Recreation Officer in each activity, however, to contact the local Army Special Services Officer to insure equitable distribution of each unit within the schedule as worked out by the Army and Navy at the command level.

Recordings of major radio network shows and special talent programs are distributed to overseas units without charge through the Commander Western Sea Frontier (SubordComdServPac) and the Commander Service Force Atlantic Fleet with local distribution through the nearest Fleet Motion Picture Exchange. These can be played on turntables attached to 35mm. strip film projectors and on phonographs that turn at 33⅓ r.p.m. Suitable dual-speed phonographs are stocked by the Naval Supply Depots.

V-Disc Kits, each containing twenty twelve-inch phonograph records of music designed to suit all tastes, can be ordered direct from BuPers at the cost of $12.00 per kit.

Permission to print a base or station newspaper may be requested from the Secretary of the Navy, via BuPers.

Self-entertainment material for variety shows, plays, skits suitable for smokers and so on, is available from the OinC, Naval Liaison Unit, Entertainment Section, Special Services Division, ASF, 25 West 45th Street, New York 18, N. Y.

303. Advancement in Rating

Personnel officers should be thoroughly conversant with all phases of this subject, and should encourage and assist men interested in advancement. This is one of the best means of maintaining morale at a high level. Before departure a check should be made to determine that sufficient complete files of Alnavs and BuPers Circular letters on the subject are available. Careful attention must be given to instructions to preclude the possibility of unauthorized advancements, with subsequent revocation. See particularly *BuPers Manual,* Part D, Chapter 5, and Alnavs 11D-44 and 192-44.

304. Mail—Official and Personal

Efficient handling of both official and personal mail is essential to the proper functioning of any unit. Efficient expedition of official mail decreases the need for frequent radio messages. Prompt delivery of personal mail is conducive to good morale.

When advanced base units are established, information should be furnished Op–20M as to whether a post office is desired. Post offices and V-Mail components are normally assigned to Lions, Cubs, Acorns and other independent units, based on the proportion of one mail clerk to every 500 persons to be served. In addition to the unit post office, recent policy has been to provide a Fleet Post Office with each Lion or Cub. The purpose of a Fleet Post Office is to furnish mail service to ships of the Fleet utilizing the particular base to which the unit is assigned. The complement and equipment for Fleet Post Offices are prescribed in the Catalogue.

Navy Post Offices are assigned two numbers, an accounting number in the 10,000 series, and a Navy mail address number. The accounting number is used only on money orders and Post Office returns. The Navy number is used for routing mail to that area. Mobile units use their mail address in accordance with existing instructions.

In requesting post office facilities, Commanding Officers should nominate, in accordance with existing instructions, their own mail clerks, unless mailmen are available for assignment to them. Construction Battalions and similar units assigned to a Lion, Cub

or other standard unit normally will have their own mail facilities.

Before leaving the United States, the Commanding Officer of an advanced base must ascertain that his personnel have been correctly informed as to their proper address. After leaving, any changes of location of the unit should be reported to the Area Commander, who will coordinate mail instructions with CinCPac for the Pacific or with CNO for the Atlantic. After arriving in an area, postal matters, including requests for post offices, should be coordinated through the postal representatives of the Area Commander.

The most important requirements of efficient mail service are:

(*a*) Information.

(*b*) Directory service.

The Postal Officer must coordinate sources of information, administer the post office itself, and initiate and maintain an efficient directory service in order to forward mail properly to addressees who have been transferred, as well as to expected arrivals. This requires close cooperation with the personnel records office. If mail is received for another unit, it should immediately be forwarded to the proper destination if known, or information as to disposition requested from the Area Commander.

The Postal Officer must familiarize himself with existing instructions regarding mail addresses. Large quantities of mail have been lost and seriously delayed by improper or incomplete addresses and code names. This situation is aggravated by the use of shipping designators for personnel records of transfers, pay accounts and other such matters.

A Fleet Post Office Unit is furnished initial supplies of stamps, stationery and other consumable equipment. Postal officers and clerks must anticipate their requirements in sufficient time to allow for the shipment of supplies.

305. Assembly of Personnel for Overseas Duty

When personnel are assembled for overseas duty careful individual checks must be made to determine that:

(*a*) All required inoculations are completed.

(*b*) Identification tags and cards are provided.

(*c*) Service and health records accompany the personnel.

(*d*) Pay accounts are in order and men paid currently.

(*e*) Personnel have received tactical training in accordance with the CNO approved training course.

(*f*) Men have been examined for professional, physical, and psychological fitness for duty at an advanced base in the locality to which they are going.

(*g*) All men have bedding rolls, full bags of regular clothing and the appropriate individual allowances of special clothing as approved by CNO.

(*h*) All personnel have infantry equipment and small arms as listed in the J15A and J15B Components (exclusive of those items intended as a group allowance).

(*i*) Cots, bedding, tents and personnel equipment accompany personnel in same ship, stowed to be available for unloading first.

(*j*) All personnel are informed of their new mailing addresses and directed to inform their correspondents.

(*k*) All personnel with dependents have registered allotments to them and taken care of life insurance premiums if any.

(*l*) All "next of kin" and beneficiary slips are up to date.

306. Special Clothing for Advanced Bases

The allowances of special clothing for overseas bases have been established by the Chief of Naval Operations subject to revisions as needed. There has been extensive study and experimentation as to design, protection in various climates, serviceability, durability, camouflage and other factors that go to make the best clothing items for use in the severe climates where our forces, afloat and ashore, are serving. As the result, the many individual clothing items (jackets, helmets, arctics, shoes, goggles and so on) have been standardized. These allowances are divided by climatic zones; tropic, temperate, cold and arctic.

Stocks of special clothing for distribution have been authorized at the following activities:

Navy Supply Pier, Portland
Navy Yard, Boston
Naval Construction Training Center, Davisville
Naval Supply Depot, Newport
Naval Supply Depot, Bayonne
Naval Supply Depot, Norfolk
Navy Yard, Charleston
Naval Supply Depot, New Orleans
Naval Supply Depot, Seattle
Naval Supply Depot, Oakland

"Another thing, men—stop patronizing these native barbershops."

Advanced Base Depot, Port Hueneme
Naval Supply Depot, San Diego
Naval Advanced Base Personnel Depot, San Bruno
Naval Construction Battalion Replacement Depot, Camp Parks, Shoemaker
Naval Receiving Barracks, Training and Distribution Center, Shoemaker

Requisitions for stock needs of special clothing will be submitted to the Naval Supply Depot, Scotia by the first eight activities listed above, and to the Naval Supply Depot, Clearfield by the last seven activities. Other activities within the continental limits requiring special clothing for issue in accordance with allowance lists will submit requisitions to the most accessible of the first twelve activities listed above. Activities outside of the continental limits will submit their requisitions to the Naval Supply Depot, Bayonne for special clothing to be shipped from the east coast and to the Naval Supply Depot, Oakland for special clothing requiring shipment from the west coast, except in cases where specific instructions have been issued. All articles of standard outfits are normally issued with the original base outfit of personnel proceeding to overseas bases. Requisitions for replacements should show the quantities of each article desired, and should be limited to only such authorized items as are actually required by the requisitioning activity.

Area Commanders and Sea Frontier Commanders will approve the requisitions for special clothing that fill authorized allowances without referring to the Bureau of Supplies and Accounts.

Requests for special clothing in excess of authorized allowances shall be endorsed by the Commanding Officer and submitted to the Chief of Naval operations for approval. Such requests shall state the urgency of the need.

307. Clothing and Other Personal Items Needed for Advanced Base Duty in the Pacific[1)]

The general rule is:—Travel Light. Frequently you may be required to do your own laundry; in the early stages, you undoubtedly will do your own and you will learn not to let it accumulate. Soiled clothing will mold very quickly and must be cleansed soon after removing. Very little ironing is done and clothes are dried in the sun. You will get a lot of exercise racing sudden tropical showers to the clothes line.

1) Paragraphs 307, 308 and 309, containing informal suggestions as to personal equipment desirable at advanced bases, are reprinted from the *Advanced Base Supply Handbook*.

Officers should forget about their whites, but may need one suit of blues. A "hot locker" will be the only place you can keep them in any reasonably good condition, but if you have an opportunity for a rest period in New Zealand or Australia, you will want your blues. It gets quite cold "down under." Take your raincoat, but, of course, no overcoat.

For officers, khakis are formal dress, informal dress, work uniform—in fact, they are The Uniform. Grays are now quite common and are worn in the same manner. Six pairs of trousers and six to eight shirts are probably enough. The blouse is never worn on the islands but you should take one with you.

Enlisted personnel should take one suit of dress blues for any possible visit to Australia or New Zealand, as well as two suits of undress whites.

The balance of the suggestions we have to make apply to both officers and men. Field green uniforms will most probably be worn throughout the emergency phase and if the locale is one which enjoys cool evenings, you will want a light sweater or Army-type field jacket. A dozen suits of underwear and an equal number of pairs of socks should be enough. Take white wool socks as they are essential for the health of your feet.

You will wear field shoes ninety percent of the time so get two pairs before you leave the States. However, you will want Oxfords to wear at times and a pair should be included. You will welcome a pair of light sneakers or mocassins to wear in tents and around camp. Sneakers are essential for swimming at many coral shore bases.

Everyone should have a light raincoat or poncho. Ponchos are the most satisfactory rain garment but any lightweight water-repellent covering should be sufficient. The sun helmet is an obvious necessity in the tropics and be sure to take a pair or two of good sun glasses. Don't underestimate dark glasses; you will want them badly. If you wear eyeglasses most of the time, it is a good idea to have a pair of sun glasses ground to your prescription.

You should take enough toilet articles to last you at least a month after you land. A small hand mirror of good quality which will not rust will be very handy. Towels are normally available, but they are apt to be scarce and it won't hurt to have a couple with you. The small scrub brushes sold in ship's store will be needed to remove the mud from your clothes. A metal or plastic soap dish is also a great convenience.

Cigarettes are usually plentiful and, of course, much cheaper than in the States. However, some type of cigarette case will be needed to protect your smokes from the excessive perspiration that is an accepted part of island duty. Take extra lighter fluid and flints for your lighter, which will be one of your most valuable possessions. Matches are always hard to find and a cigarette lighter is a must.

A small sewing kit is another item which will be well worth its weight.

The best type of radio is one that you can carry easily in your hand, but not a battery set.

However, more important than your radio or blues is a generous supply of powder. The well-known antiseptic powders are very satisfactory, but any dusting powder will do. Without powder, your feet and other portions of your anatomy will be in a constant itch.

Financial Affairs.—Don't overlook making a complete survey of your financial affairs before you shove off. Play on the safe side—make a will and consider the desirability of assigning power of attorney to a trusted friend. In addition, the advantages of establishing a joint bank account should be considered. Any Legal Assistance Officer at a Naval Station will be glad to advise you in these matters and prepare the necessary forms. The need for insurance or registering allotments should not be overlooked. It is not feasible to send your wife a monthly check from overseas, as delivery is not always expeditious.

Dental Check Up.—Have your teeth cleaned and all necessary dental work completed prior to embarkation.

308. Shipboard and Shore Suggestions

The following comments, excerpts from an article by an experienced officer in the field, describe in realistic detail the trials and tribulations you can expect while being transported to your advanced base and during the first hectic days ashore.

> Transport sleeping quarters are unbearably hot in the tropical Pacific. Blackout reduces air circulation to a dirty name. Few transports have fans, so taking some along, if you can get the right voltage, will greatly improve the situation. Be sure to take them ashore with you. Sleeping on deck is the best relief, and is highly recommended. Most ships insist on removal of all bedding from the decks by day. Each officer should have a cot, a hammock, or a sleeping bag (listed in order of preference). The sleeping bag must be supported off the deck. Otherwise it will be wet and filthy in no time.

A blanket and sheet add a little comfort. Remember, it may rain every night and chase you below, but that's better than tossing all night in a hot bunk room. By putting your poncho or shelter half over your cot, you usually can sleep right through the rain. By tricing your hammock close to the overhead on deck, you will miss the rain.

Transports do not provide deck chairs, so a folding metal chair is excellent equipment for each officer. Particularly since it can be taken ashore later. Lightweight canvas chairs get broken up in short order. If canvas-bottom chairs are taken, they should be the heavy type.

A large amount of salt-water soap should be taken. Salt-water showers are about the only luxury aboard.

Ship stores of everything you want are sure to be inadequate. Many officers and men want cigars aboard ship. These should be cautioned to take their own, as cigars are hard to get west of Pearl. . . . Matches are scarce as hen's teeth, usually, and those with lighter fluid generally get it borrowed by their so-called friends.

In spite of the obvious need for books, magazines, playing cards, poker chips—yes, dice—there usually is a great scarcity of these items aboard ship. Some turkey always borrows your book and says his is in his cruise box. Although entertainment items usually are more or less community property, everyone should do his share of taking. By the way, paper playing cards don't last long, but plastic cards are the berries, as they withstand humidity, dirt, and hard handling.

Marital ties reach a new tightness west of Pearl, in that a lot of officers and men write mamma every day. Then there is the other type of fellow who has a lot of fluff on the string and writes each of them beaucoup letters invariably giving each one the same silly line. These two menaces put a big burden on transport planes and quickly exhaust all available writing material and air mail stamps. The point of this is to stock up on writing material and stamps before leaving Pearl. This has a disadvantage, since the envelopes as well as the stamps always gum-up to high heaven. Be sure to pack them loosely, and protect the stamps with wax paper by all means. A good stunt is to attach the stamps to the envelopes right off.

Each officer should take along enough soap powder to wash his clothes en route. They will need it often, too. The men generally have to wash their clothes in salt water.

More important than firearms is a pair of wooden clogs. They should be religiously worn around showers, etc., as at the shipboard stage of the game you are a lot more likely to get injured by athlete's foot than you are by the Nips. These fungus infections are usually present anywhere you can walk barefooted, and they will make your life miserable if you get caught. Foot powders, etc., also should be stocked by everyone who values his life.

Heat rash is another malady you can expect. All sorts of trick remedies have been recommended; maybe you know some new ones. Personally, I find that a creamy body lotion to replace the oils sweated and washed out of the skin is the best deal. Don't hold me to it, though, because it may not work on you.

Everything of a takable nature, whether it sits, walks, or crawls, should be plainly and permanently marked with its owner's name. Otherwise, it is going the way of all flesh and disappear—that you can count on.

It is a neat trick if you can get in advance a small inflatable life belt. Otherwise you have to carry with you at all times aboard ship the dirty kapok jacket which is issued by the ship.

Shore Suggestions

Once ashore, the first hundred days are the hardest. The only way to keep the situation from looking completely like fire drill is to think out your deal before you start and provide the things you initially need. As the country girl's mother told her when she went to the big city, "don't trust nobody." Those famous last words, "The Acorn told us they had that," are small recompense for sleeping on the ground when you get there. If you weren't a dope you would have checked every item you would need yourself before you left.

Your poncho is the best rain repellent yet conceived by man for the tropics. Sheath knives just make you look tough. They don't have much use. A Boy Scout knife is what you need. Two canteens are none too many. You can keep one of the cups with your mess gear. Outside of combat troops, few people have any use for backpacks and trench tools.

Your CO should circulate the camp rules at an early date. These rules should require long pants and long sleeves at night, and during the day too, if you are in a dengue area. Most mosquito bites are incurred while the boys sit around talking before hitting the sack at night. A good trick is to stuff your trouser legs into your socks.

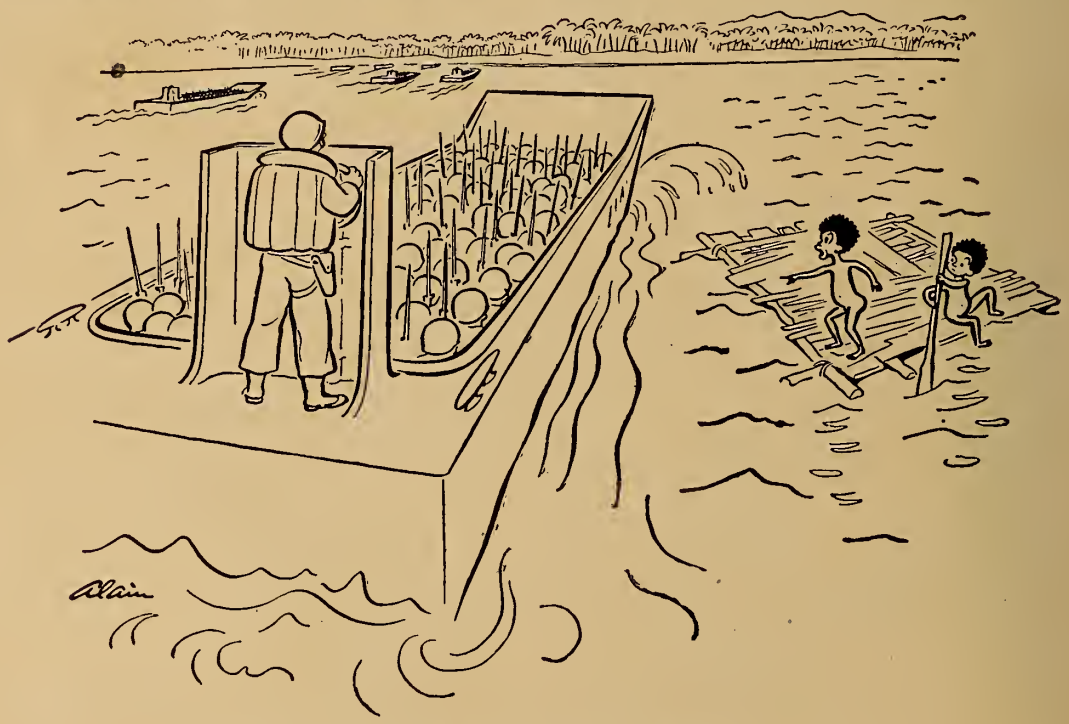
A liberal application of a mosquito repellent before you start the game at night is a must. Put it all over your face, ears, neck and hands. Even the Nips have sense enough to sleep under a mosquito net.

In protection against insects, then, we have full length clothes, screens and netting, insecticides, and repellents. Use them all liberally, and then sleep with your 45 close at hand because those mosquitoes are really persistent.

Let me tell you about a couple of words you had better stock up on in liberal quantities. Tolerance and self-discipline. Your outfit will be closer together than a bunch of girls in a sorority house. The other officers are sure to have little personal traits and habits that will get in your hair plenty if you let them. Brother, you've got them too. At least one of those other guys will think you are the biggest heel in the outfit. Personally, I agree with him. And out there where there is no escape, small annoyances are apt to become monstrous. So, call this drivel if you want to, but if you will spend more time trying to make yourself a little less obnoxious and less time chipping your teeth about others, you may be able to stand even your wife's nagging when you get home and, incidentally, keep your teeth intact while you are out there.

309. Check-off List of Personal Items

Some of the following items may be issued to you and many will be available at an established advanced base. However, it is well to be sure that they are available, which will usually mean carrying a sufficient supply of your own to last at least a month.



"Coin, Mister! Throw coin, Mister!"

Cards, playing, plastic
Cigarette case
Cigarette lighter (flints and fluid)
Clogs, wooden
Cord, a small supply
Envelopes, stamped air-mail
Eyeglasses, extra pair
Flashlight (extra batteries)
Foot powder
Games
Insect repellent
Jackknife
Mirror
Poncho, or light raincoat
Radio, small
Salt-water soap
Scrub brush
Sewing kit
Soap box
Soap powder
Stationery
Sun glasses (2 pairs)
Sun helmet
Sunburn cream
Talcum powder
Toilet articles
Watch, with extra strap

No officer should leave for an advanced base without side arms, a steel helmet, a belt and holster, a carrying case for two clips of ammunition and a gas mask with carrying case. It has often been stated that this equipment is supplied at advanced bases. This is *not* the case; every officer *must* make arrangements for getting this equipment before leaving the United States.

310. Hints for Advanced Base Junior Officers

You will be faced with many problems. In most cases you can and must solve them for yourself.

The first step in the solution of any problem is the recognition that the problem exists.

The next is the confidence that any problem can be licked by an able and determined man.

Before trying to reach the solution of an involved problem be sure that you first obtain a clear understanding of all the facts bearing on the problem. This is particularly important because there is a regrettably common tendency to enter into lengthy discussions and arguments before the facts are developed.

If you must refer the problem to higher authority, prepare a clear statement of the problem and all obtainable facts before you present the problem. Make every effort to present a recommended course of action at the same time. This will save your time and your senior's time.

You must be able to act on your own initiative—but remember when you do so it must be an informed initiative.

In all major matters, keep your senior in the chain of command informed of your actions. Just where to draw the line between giving him too little information and presenting trivial details can be determined only by your good sense, experience and knowledge of his characteristics and desires. Cultivate the habit of awareness. Just as a good seaman takes subconscious recognition of all changes in the appearance, speed and course of a formation, of all conditions of sea and weather and of occurrences on the deck of his ship, so should any officer on the beach keep constantly aware of the goings on. You never can tell when an apparently trivial occurrence may grow to great significance in your particular job.

War accentuates this—so don't dope off!

Remember that your job is to work for the combat forces. When a job comes up, get it started. Unless absolutely necessary don't attempt to supervise all the details because that will tend to destroy the confidence and initiative of your men. But do follow up—it's your responsibility to get it done, and done well and quickly. If you pass the buck, and then wring your hands because the job doesn't get done, you are a failure and the combat forces will suffer.

Follow up and follow through.

311. The "Can Do" Man

Naval officers, like other men, can be roughly classified as "Can Do" and "No Can Do" men. When a proposal is made to the first type man, his mind instinctively appraises the proposal on the basis of, "Is this a desirable objective?" Next, "Is it possible of accomplishment?" "What means are available to accomplish it?" "What will it cost in time, labor and material?" "What effect will it have on other projects?" On the basis of the answers to such questions he makes a decision from a constructive point of view.

The mind of the "No Can Do" man instinctively reacts about as follows: "This bird is trying to put something over on me." "He has some ulterior motive." "If I agree to this proposal, it will mean extra work for me." "What reasons can I dig up to prevent it?" "We didn't do it this way in the Old Navy."

The "Can Do" man may turn down the proposal but he will do it on an informed and reasoned basis. The "No Can Do" man will turn it down because of his own inherently obstructive nature.

Train yourself to be a "Can Do" man and you will find that you stimulate the enthusiasm, imagination and initiative of your juniors, whereas the "No Can Do" man stultifies all spirit of enthusiasm and pride.

Remember, only an ignoramus believes that this war can be won on a routine basis without the exercise of enthusiastic and imaginative initiative all along the line.

312. Delegation of Authority

A successful commanding officer knows how to delegate authority; if he attempts to do everything himself, both he and his organization bog down. His job is to train his officers to do their jobs, and he can do that only by giving them responsibility and holding them accountable.

One excellent test of any organization is: How will it function in the absence of the CO? If it functions well, he is a success; if it bogs down in his absence, he has failed. Remember, too, if you want a transfer, the first question that should be asked is, "Is your second capable of taking over now?" If you haven't done a decent job of training your second, you don't deserve relief. One of the gratifying aspects of this war is the manner in which relatively green reserve officers have responded and developed when given responsibility.

If you are convinced that one of your officers does not measure up to the standards he should have achieved, ask for his relief on the grounds of incompetence and recommend that his temporary rank be withdrawn. It is not fair to the competent officers under your command to retain an incompetent in equal rank.

313. Some Suggestions on Procedure for CO's

In many cases officers ordered as commanding and executive officers of advanced base projects are ordered to the Office of the CNO for temporary duty.

The following suggestions are offered to assist them in the initial work of organizing their base:

Upon Reporting to CNO

Read all basic directives on the organization of a base. Make a file for own reference.

Familiarize yourself with the organization of Op–30 and acquaint yourself with the specific duties of each section of the Division.

Contact officers of each Bureau of the Navy Department, charged with advanced base duties.

Obtain a copy of the allowance list from each Bureau. Study carefully to familiarize yourself with types of material.

Attempt to have your Supply Officer, and as many other heads of departments as possible, ordered to CNO for duty prior to assembly date.

Study previous organizations and draw up tentative organization chart.

After you are familiar with the general plan of advanced base units, request temporary additional duty orders for yourself and heads of departments present to visit any major unit already assembled on the East Coast. Spend as much time there as possible.

Upon Return to CNO

Complete your arrangements for the assembly of your officers and men, allowing sufficient time between assembly date and readiness date for training.

Assure yourself that housing and messing facilities are ample and available prior to assembly.

Plan to have all officers possible report to assembly point at least a week prior to the assembly date.

Visit the Bureau of Yards and Docks Camouflage Laboratory. (See models of advanced base layouts.)

Study the organization of a Naval District and that of a Navy Yard.

Study carefully typical reports from Commanding Officers of bases already established or being established and reports of inspecting officers. You will have the same problems.

Correspond with Commanding Officers of other bases being assembled in the United States, for discussion of mutually interesting problems.

Attend Friday morning conferences on advanced base problems while attached to CNO.

Upon Assembly

As personnel report, make out a complete questionnaire on each officer and man (under supervision of an officer).

In making assignments to various departments, study the background of each officer and man.

Take advantage of every possible facility for training of officers and men. (See Chapter IV.)

Have all departments study allowance lists for shortages and possible missing items that will be re-

quired. Be sure to obtain enough copies and get on the mailing list of each Bureau for future revisions.

Arrange for Supply Officer, Communications Officer, Intelligence Officer, Medical Officer, Public Works Officer to visit their respective Bureaus on temporary duty from time to time for clarification of questions which arise.

Study carefully the needs for communication between the various battle stations. Pay particular attention to secondary means of communication.

Obtain lists of publications to be furnished from each Bureau.

Before departure from the United States, contact the Hydrographic Office, Washington, for necessary charts and get on the mailing list for all publications and changes.

314. Construction Battalions, Regiments and Brigades

Construction Battalion (P1 Component).—Personnel consists of approximately 33 officers—27 Civil Engineer Corps, 1 Medical Corps, 2 Dental Corps, 2 Supply Corps, 1 Chaplain Corps—and 1082 enlisted men organized into one headquarters company of 178 men (including cooks, bakers, yeomen, storekeepers, mail clerks and so on) and four companies including one Maintenance and Operating Company, one General Construction Company, one Roads, Airfields and Excavating Company and one Waterfront Construction Company (including Carpenters, ironworkers, electricians, shipfitters, motor mechanics, construction equipment operators, metalsmiths and so on). Since each battalion is fully equipped with its own housing and messing facilities, tools, construction equipment, pontoon gear and weapons, it is completely self-sustaining. In addition, it may be readily broken down into a quarter, half, or three-quarter battalion for smaller projects or for the maintenance and operation of public works at completed bases. When organized as one-half battalion, personnel consists of 17 officers—14 Civil Engineer Corps, 1 Medical Corps, 1 Dental Corps, 1 Supply Corps—and 541 enlisted men consisting of one headquarters company of 82 men and two companies, one with 122 men and one with 337 men. Weapons consist of carbines, .30 cal. M1, and automatic rifles.

Construction Battalion (Special) (F1 Component).—Personnel consists of 34 officers—28 Civil Engineer Corps (especially trained in stevedoring work), 1 Medical Corps, 2 Dental Corps, 2 Supply Corps, and 1 Chaplain Corps—and 1064 enlisted men, organized into one headquarters company of 263 men (including cooks, bakers, yeomen, storekeepers, mail clerks and so on) and four stevedore companies (including boatswains, stevedores, welders, riggers, equipment operators, builders, electricians and so on). These units are also self-sustaining and may be broken down, should the need arise, into quarter, half, or three-quarter battalions. Each company is designed to handle a standard Liberty Ship, single shift, including moving cargo clear of dock. When organized as one-half Construction Battalion (Special) personnel consists of 17 officers—14 Civil Engineer Corps, 1 Medical Corps, 1 Dental Corps, 1 Supply Corps—and 527 enlisted men, consisting of one headquarters company of 128 men and two companies, one with 199 men and one with 200 men. When organized as one-quarter Construction Battalion (Special), personnel consists of 7 officers of the Civil Engineer Corps and 266 enlisted men, divided into one headquarters company of 67 men and one company of 199 men.

Weapons consist of carbines, .30 cal., hand grenades, antiaircraft guns, machine guns, .45 cal. pistols, 60 mm. and 80 mm. mortars, automatic rifles and submachine guns.

Construction Battalion Maintenance Units (P5 Component).—Due to the need for a smaller unit than a Construction Battalion for the maintenance and operation of advanced bases upon completion of the original construction, there have been established Construction Battalion Maintenance Units. The personnel consists of one construction company plus one-quarter headquarters company—7 officers and 270 enlisted men—total 277.

As in the case of Construction Battalions, the personnel of these units is made up of skilled workers from the construction industry who are trained in advanced base maintenance and operation duties. They are fully trained in the operation of all specialized advanced base equipment. Although armed only with a personal weapon—carbine—and ammunition, they are fully trained in both defensive and offensive combat, including amphibious activities and other weapons that are issued to Construction Battalions—hand grenade, .30 caliber machine gun, 60 mm. and 81 mm. mortars, and 20 mm. antiaircraft gun.

Construction Battalion Detachments. — Detach-

ments are organizations with material and equipment designed for their intended functions. Personnel may vary from less than a platoon to thousands of men. Among the larger detachments are the Advance Base Construction Depots (ABCDs). The Pontoon Assembly Detachments (Component P10) have a complement of approximately 16 officers and 411 enlisted men. Automotive and Construction Equipment Spare Parts Depot, (ACEPDs), have a complement of 2 officers and 57 men. Detachments are equipped with weapons of varying types depending upon their location.

Construction Battalion (Pontoon).—This organization, consisting of 65 officers and 1153 enlisted men, is for ferrying operations and for construction, maintenance and operation of pontoon equipment. It is divided into a headquarters company of 129 men and four pontoon companies of 256 men. One quarter Construction Battalion (Pontoon) consists of a headquarters company of 36 men and one pontoon company of 256 men together with 19 officers. A Pontoon Platoon consists of 2 officers and 42 enlisted men.

Construction Battalion (Waterfront).—This organization for waterfront construction consists of 33 officers and 1082 enlisted men. The battalion is made up of one headquarters company of 174 men, one maintenance and operating company of 159 men, one general construction company of 131 men and two waterfront construction companies of 309 men each.

Construction Regiment.—A regiment is set up for the purpose of coordinating the activities of three or more Construction Battalions, Construction Battalion Specials, Construction Battalion Maintenance Units or Detachments engaged on the same project or in the general area. The regimental staff consists of 10 officers—9 Civil Engineer Corps, 1 Supply Corps—and 56 enlisted men (including yeomen, builders, armorers, powder men, draftsmen, surveyors, equipment operators, firemen, electronics, photographer, stevedores and seamen). The senior battalion Medical Officer has additional duty with the regiment.

Construction Brigade.—This is an administrative organization for coordinating the work of two or more regiments, together with battalions and detachments in the general area, which are not under the jurisdiction of a regiment.

To date Construction Battalions, Construction Battalions (Special), Construction Regiments and

Construction Brigades have operated in all combat areas in the construction and maintenance of advanced airfields, communication facilities, fleet and other facilities. While primarily intended for defensive combat operations along the lines of the Marine Corps Defense Battalion, they have upon occasion taken part in offensive operations incidental to the establishment of advanced bases. Also due to their mechanical skill, they have been called upon to perform emergency repairs to fleet units such as aircraft carriers and destroyers.

315. Ship Repair Units

Ship Repair Units have no organized counterpart in any United States military organization. Serving ashore and afloat in every theater of war, their sole mission is to keep Naval ships in fighting trim. Personnel of Ship Repair Units is made up of skilled workers and craftsmen drawn from a wide variety of industries. These men then get special ship repair training at Navy Yards or repair bases in the United States before they are assigned to repair ships or advanced bases. Although men of SRUs are not intended to be combatants, they are taught to use weapons to defend themselves in hand-to-hand combat, and to man battle stations aboard ship.

Development of versatility in mechanical skill and the all-round toughness of a hard-hitting fighter are the primary objectives of the intensive SRU training period.

Versatility is almost an essential qualification for ship repair men, for units are called upon to do such varied jobs as repairing and rebuilding engines, installing secret devices and repairing damaged armament. Or they may have to install magazines, repair gun mounts, make underwater repairs on damaged hulls, clear harbors of wrecked enemy ships, or put captured enemy ships back in action.

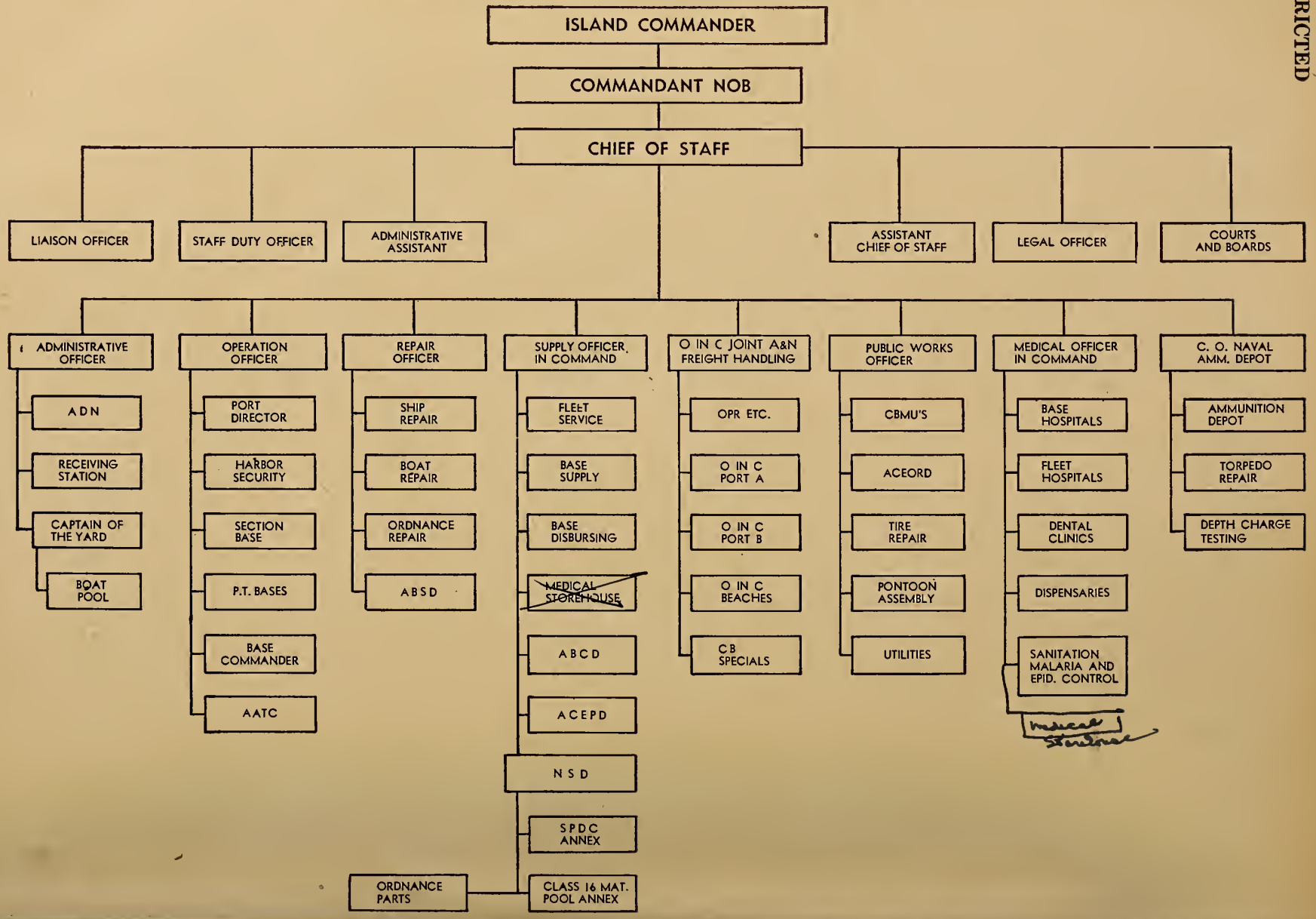
Although SRU men get broad training, they are fitted into teams or units that specialize in one particular kind of repair work. The number of officers and men composing such units, and their functions, are described in the *Catalogue of Functional Components.* About three quarters of SRU enlisted men are rated men.

316. Sample Organizational Charts

The actual organization of any advanced base unit depends on so many variable factors that no chart can be universally applicable, and a type chart may never exactly fit any existing set-up. With these facts in mind the following charts are included for such help as they may afford in organizational planning. Some of the charts are types and some are of actual units which are, or have been, operating in the field. The functional components were established to provide flexibility. The necessity for that characteristic must be borne in mind by the Commanding Officer in working out the details of his organization.

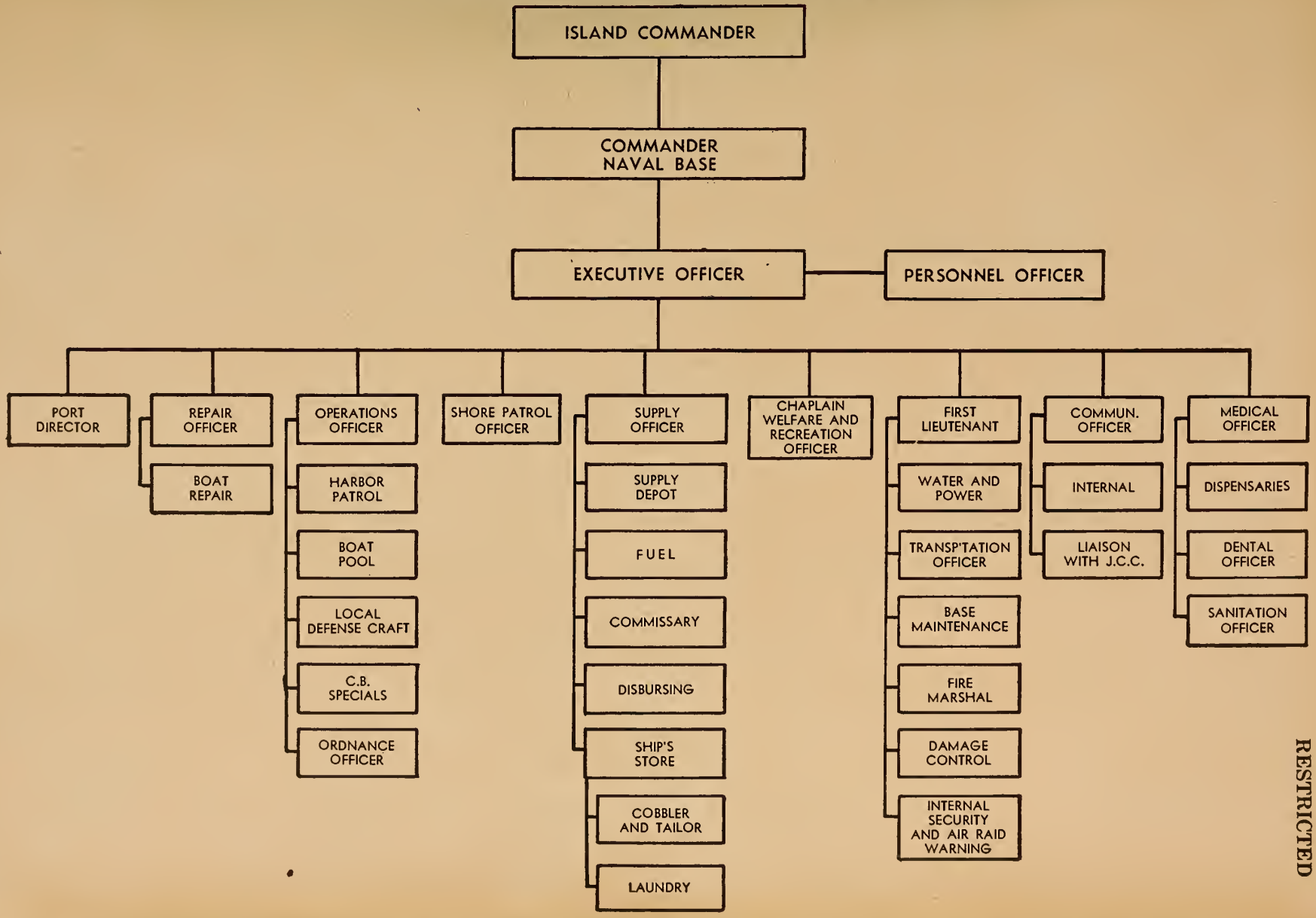
TYPICAL ORGANIZATION FOR A LARGE NAVAL OPERATING BASE, OR LION AUGMENTED

ORGANIZATION CHART—NAVAL OPERATING BASE



TYPICAL ORGANIZATION FOR A NAVAL OPERATING BASE, A CUB OR A GROPAC

ORGANIZATION CHART—NAVAL BASE



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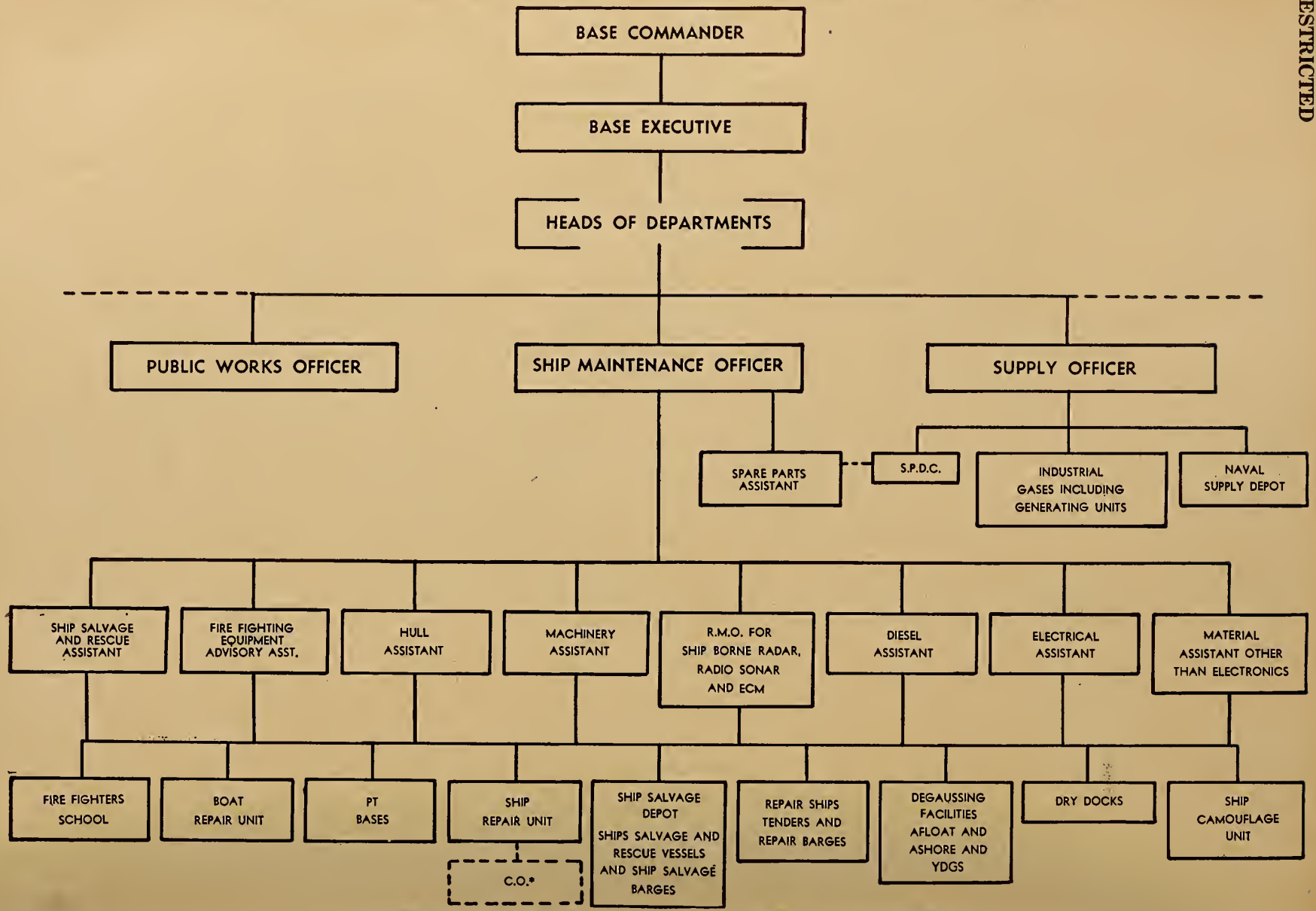
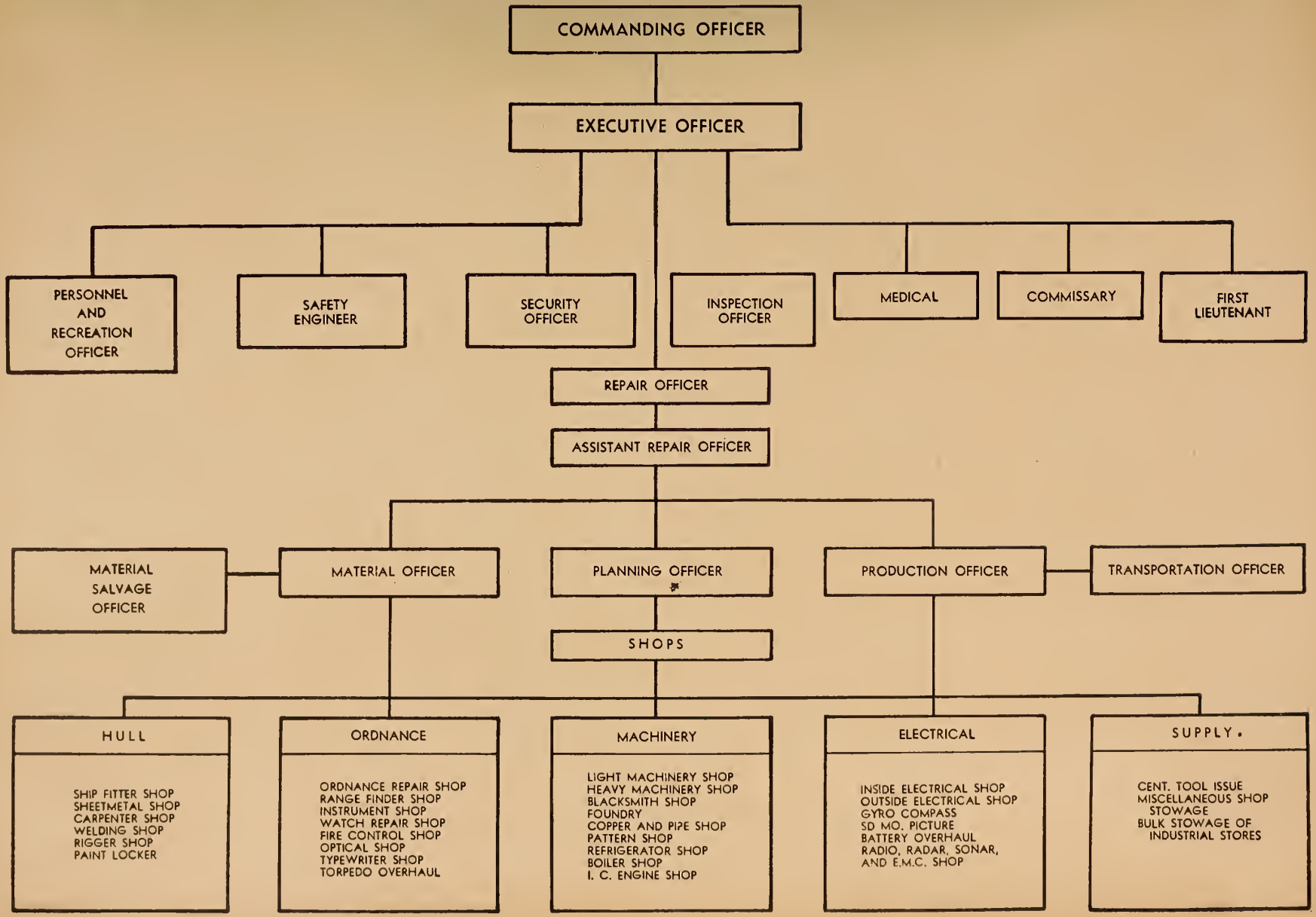
SHIP MAINTENANCE ORGANIZATION OF A TYPICAL ADVANCED MAJOR FLEET BASE



*SEE PAGE 25 FOR ORGANIZATION CHART OF A TYPICAL E2 COMPONENT

A TYPICAL ORGANIZATION OF E2 COMPONENT AT ADVANCED MAJOR FLEET BASE



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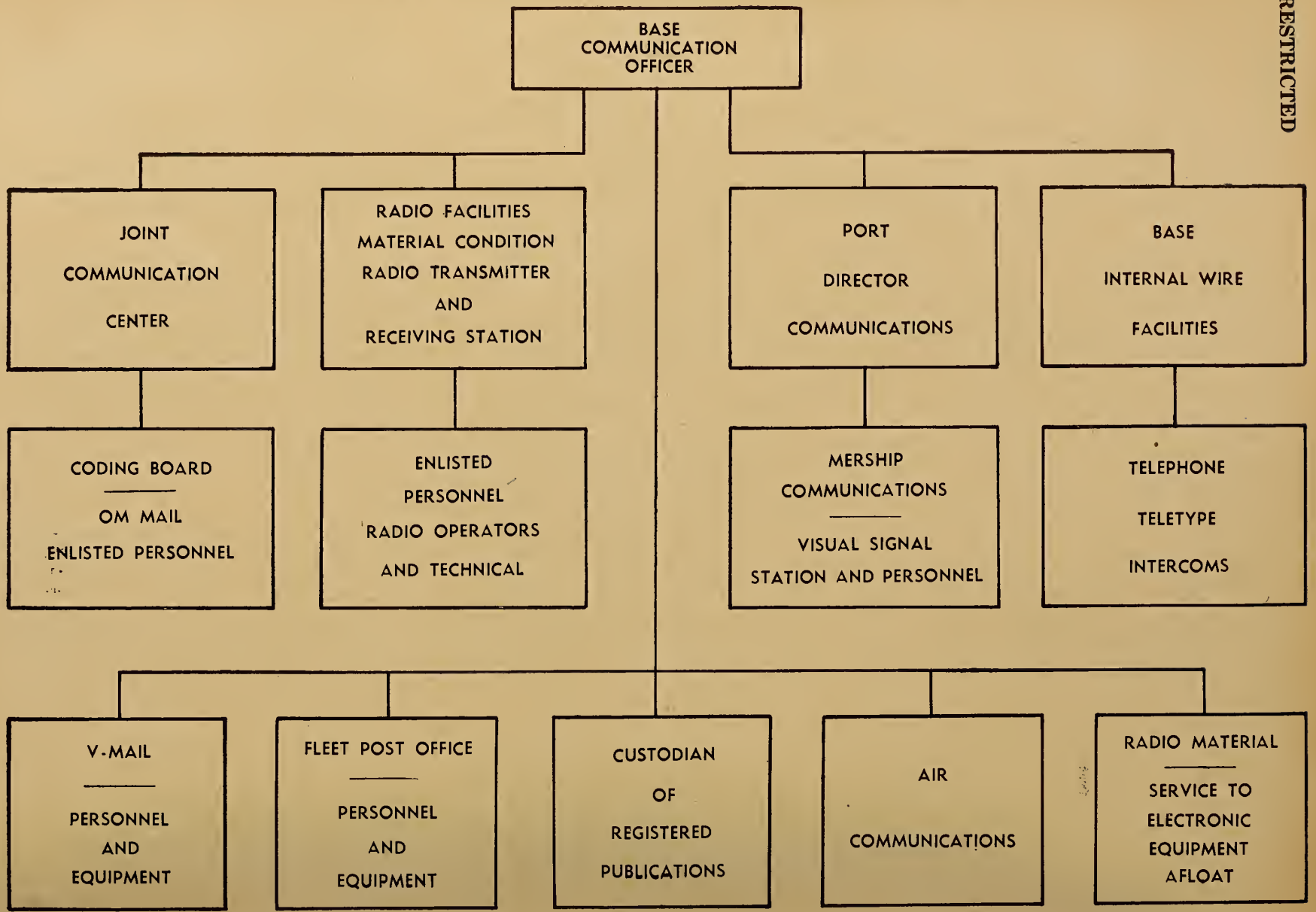
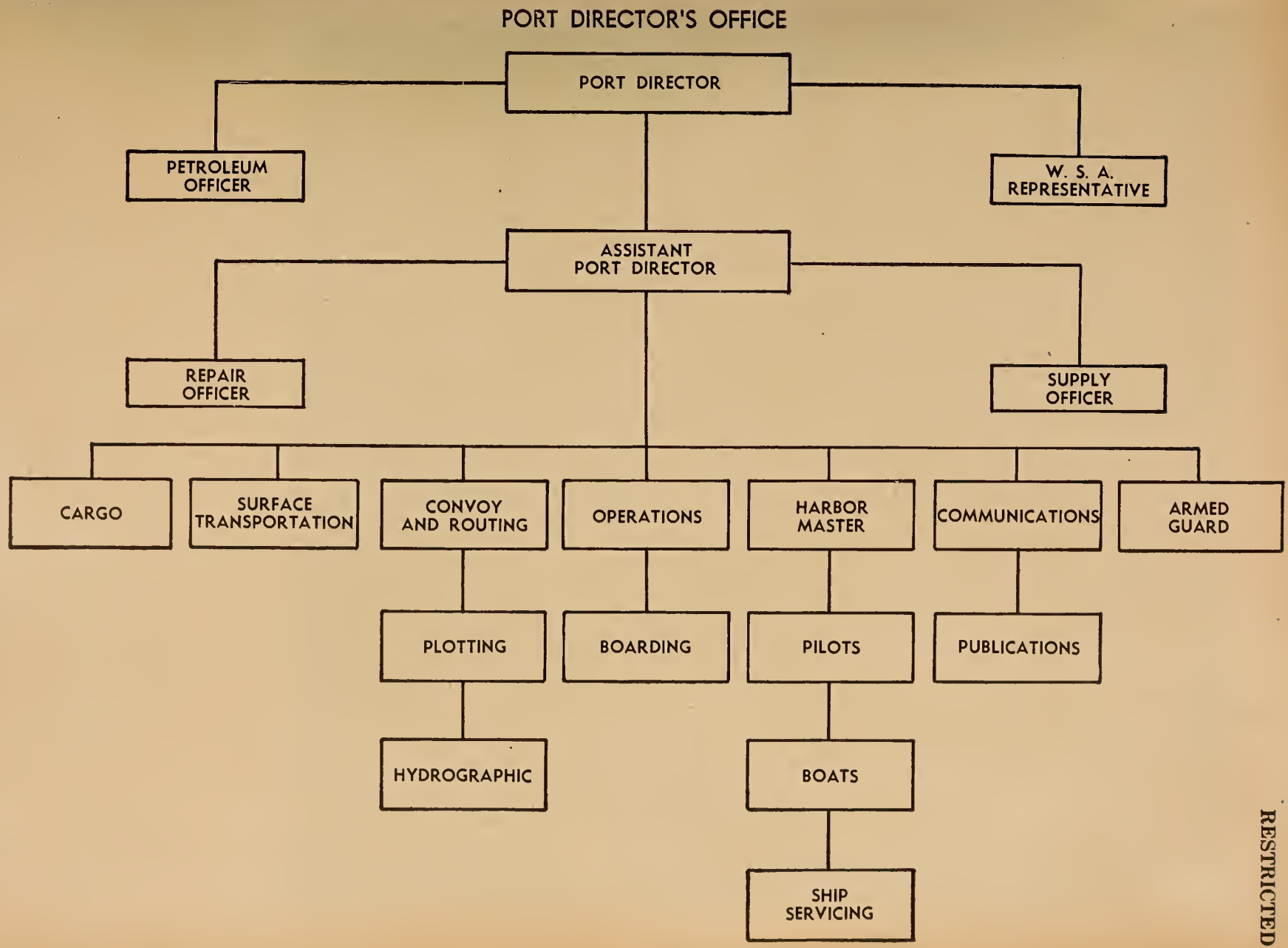
A TYPICAL ADVANCED BASE COMMUNICATION ORGANIZATION




PORT DIRECTOR'S OFFICE
PORT DIRECTOR
PETROLEUM OFFICER
W. S. A. REPRESENTATIVE
ASSISTANT PORT DIRECTOR
REPAIR OFFICER
SUPPLY OFFICER
CARGO
SURFACE TRANSPORTATION
CONVOY AND ROUTING
OPERATIONS
HARBOR MASTER
COMMUNICATIONS
ARMED GUARD
PLOTTING
BOARDING
PILOTS
PUBLICATIONS
HYDROGRAPHIC
BOATS
SHIP SERVICING

RESTRICTED

Jap shrine and Marine Corps dentist's office.

Advanced Base Training Area, Iroquois Point, Pearl Harbor.

Chapter IV

TRAINING

401. Three Phases of Training

Training of personnel for advanced base duties falls into three phases: Individual Training, Functional Component Training and Tactical Training. Sometimes there is sharp differentiation between the phases, while in other instances there may be some overlapping or one or more phases may be omitted. The first two phases are under cognizance of the Bureau of Naval Personnel, while tactical training is under the cognizance of the Chief of Naval Operations.

402. Individual Training

During the training of both officers and men as individuals, little attempt is made to adapt the training specifically to advanced base duty. It is designed to give the individual the background and skill he needs to do his job anywhere in the Navy, ashore or afloat. The normal process would then be for the individual so trained to step into a vacant billet and be absorbed into a going organization. With the establishment of new advanced bases, however, it is necessary to train the "going organization" so that when transported to its own location it can establish itself and operate to support the Fleet in the shortest possible time. To accomplish this the second and third phases of training have been established.

403. Functional Component Training

Functional Component Training is often carried on with the component as the team, though occasionally some other grouping is used when particular circumstances make it desirable. Component training, or team training, is intended to give the officers and men an opportunity to work together, utilizing the type of equipment which they will have at the advanced base, and performing operations which simulate, in so far as practicable, those to be carried on at advanced bases. In some instances the actual equipment to be sent overseas is used for training, but these cases are exceptional, and generally type equipment is used. This training is given to all components where the size of the component and number required justify the team training method.

In addition to training the component as a whole this system is of particular value in that it presents an opportunity for the officers to assume responsibil-

ity, under direction, for the training and welfare of their men. They can also learn the strong and weak points of individuals and of the component as a whole, and its capabilities in performing its assigned tasks.

404. Tactical Training

Tactical Training as distinct from functional training of individuals and Functional Components is the final phase of training given prior to embarkation to any organization assembled by CNO and destined for duty at an advanced base. Such an organization may be a complete unit comprised of many Functional Components, such as a Lion, Cub or Acorn, or a simple one formed by a single component or group. Tactical Training, which is comparable to the shakedown training of a newly commissioned ship, is similarly under the cognizance of the Chief of Naval Operations.

Special activities to furnish Tactical Training have been established as follows:

U. S. Naval Advanced Base Personnel Depot, San Bruno, California.

U. S. Naval Advanced Base Assembly and Training Unit, Lido Beach, N. Y.

Acorn Assembly and Training Detachment, U. S. Naval Base, Port Hueneme, California. (An activity of the Amphibious Training Command, Pacific Fleet.)

Tactical Training and processing of all personnel requires approximately six weeks, and officers may be given an additional pre-assembly training of four weeks.

The primary object of the training is that the organization as a Tactical Unit may be prepared from a morale, professional and tactical standpoint to establish itself at an advanced base in the shortest possible time to carry out its logistic mission to serve the forces afloat. Under Tactical Training the "ships company" is formed and the "ships spirit" of the unit as a whole is fostered. One feature of the training is the physical conditioning of personnel and sufficient combat training for defense.

Should a unit not move overseas shortly after the Tactical Training period, the component personnel are placed in further Functional Component Training in order to maintain and improve their technical skills. This training may be given at the Tactical Training Activity or by detailing components to outside training activities.

The details of assembling and training advanced base organizations are covered in the *Manual of Training for Advanced Base Units and Training Activities,* OpNav 30–11–A3, June 1944.

405. Additional Training in the Hawaiian Area

Personnel of units staging in the Hawaiian Area are given additional training with particular emphasis on proper methods of subsistence and protection for all hands; physical conditioning; advanced component training; and actual practical experience performing duties of their rank or rating in an established activity of the type to which they are attached for advanced base duty.

This program of training is varied to fit the needs of the unit and the length of the staging period. Training is under the general cognizance of ComServForPac. Commanding Officers of units and their Training Officers should confer with The Training Officer of ComServPac on their arrival, to develop an appropriate program for the duration of their staging.

In the mainland tactical training program, all hands are given experience in erection of tents and the simple types of construction insofar as time and facilities permit. At the staging area in the Hawaiian Islands this phase of training is supplemented as may prove desirable for individual components and units. Emphasis is placed on the need for all personnel to be able to perform simple construction for themselves, as Seabees are frequently fully engaged in high priority work, and living and messing facilities must therefore be erected at times by the personnel who will use them.

Chapter V

LOADING AND UNLOADING

501. Loading Plan

The loading plan is determined by the priority of unloading and the stability of the ship. In order to develop the plan properly, it is necessary for the Commanding Officer to have the maximum information as to the area which he will occupy and the expected conditions of unloading. While the responsibility for preparing loading plans may vary in different ports, the Commanding Officer of any advanced base unit should report to the Port Director of the port in which the unit is loading for information as to the actual preparation of the plan.

The actual loading plan will then be determined by consultation between the representatives of the Commanding Officer and the representatives of the Port Director.

The *Naval Transportation Service Manual* contains such valuable information on this subject.

502. Loading Officers

It is necessary that loading officers representing the advanced base unit be present during loading, and that one or more of these officers go with each echelon to assist in unloading at destination. At commencement of loading all heads of departments, miscellaneous other officers, leading petty officers, all storekeepers, winch operating crews, cargo checkers and other details must be free to supervise or witness loading. In this connection all organization details should have been completed before commencing loading. It is essential that lists of all material to be loaded be available prior to the start of actual loading. The weights, cubes, heavy lifts and unusual shapes of the entire cargo must be known in advance.

503. Loading Priorities

Commanding Officers should assist in the preparation of loading plans to make sure that materials are so loaded as to permit unloading in order of priority of need. Compromises will be necessary to insure stability and trim, but essential materials immediately necessary in landing must be accessible. In this connection consideration must be given to:

(*a*) Protection of ships while unloading.

(*b*) Type of beach, amount of slope, whether piers and docks can be built, and if so the provision of material and equipment therefor.

(*c*) Personnel available to unload.

(*d*) Provision for tank lighters, barges and the like.

(*e*) Palletizing. Where suitable to the type of cargo, palletizing is of enormous value. It is particularly well adapted to the handling of ammunition though by no means restricted thereto. It is also of special advantage for any small cargo that must in any case be discharged on the beach by crane.

(*f*) Pallet toboggans. These consist of an upturned steel prow with two runnerlike projections and appropriate tow cables. A standard four-foot by four-foot pallet may be dragged on to the toboggan and towed over rough terrain by a tractor without the use of weight-lifting equipment. Each toboggan weighs approximately 100 pounds and occupies very little space.

(*g*) Tractor fork lift trucks. These trucks, which will be available in increasing quantities beginning in June, 1945, are ideally suited for operating in soft terrain, and for unloading palletized cargo from landing craft. They are Diesel-driven, largely spark-proof, and rubber treads may be used for further safety if ammunition is to be handled.

(*h*) Safety slings. These slings have been developed for handling palletized ammunition, and are supplied principally to activities which have dock facilities.

(*i*) Cranes. For general cargo a desirable rule

of thumb is two small cranes on the beach and two at the dump for each hatch being unloaded. This will lessen the delay and congestion caused by the greater lifting capacity of winches aboard ship as compared to the average crane ashore.

(*j*) Dump areas and suitable roads and construction equipment therefor, including pierced plank or mesh.

(*k*) Facilities for communication with ships.

(*l*) Wooden mounts for light armament, rigged for immediate beach use.

(*m*) Tents, camp equipment (including mosquito nets), water-carrying and storage equipment, hand tools, dispensary, floodlights and Diesel and motor gasoline in drums.

(*n*) Trucks and bulldozers. All such equipment must be waterproofed if it is to be off-loaded through the surf.

(*o*) Adequate cargo nets, salmon boards, cordage and tarpaulins.

(*p*) Beachmaster Component, whether combat or cargo type, as different gear is required for each. Gear should be stowed topside.

(*q*) Block loading. This method may not be economical of space, but materially speeds unloading and distribution.

504. Stowage Plans

Large stowage plans should be carefully made out in as much detail as possible. Time spent here may save weeks in the field. These plans should be supplemented by manifests, hatch lists, heavy lift lists and bills of lading. These, together with allowance lists, should be made up into sets and a set provided for:

(*a*) The Master of the Vessel.

(*b*) Commanding Officer of the Naval unit embarking.

(*c*) Loading Officer of the Naval unit embarking.

(*d*) Unloading Officer of the Naval unit embarking.

(*e*) The Convoy Commander.

(*f*) Port Director at port of destination.

In addition, copies of all shipping documents should be forwarded by air mail to the Area Commander.

505. Gun Emplacements

Loading plans can be greatly simplified if accurate information as to all details of the ship, such as the

LCVPs

Unloading with landing craft.

position of gun emplacements, can be obtained in advance. Positions of gun barrels on sides between hatches may make necessary last-minute changes in stowage of heavy gear originally planned for topside.

506. Comments on Unloading Ships

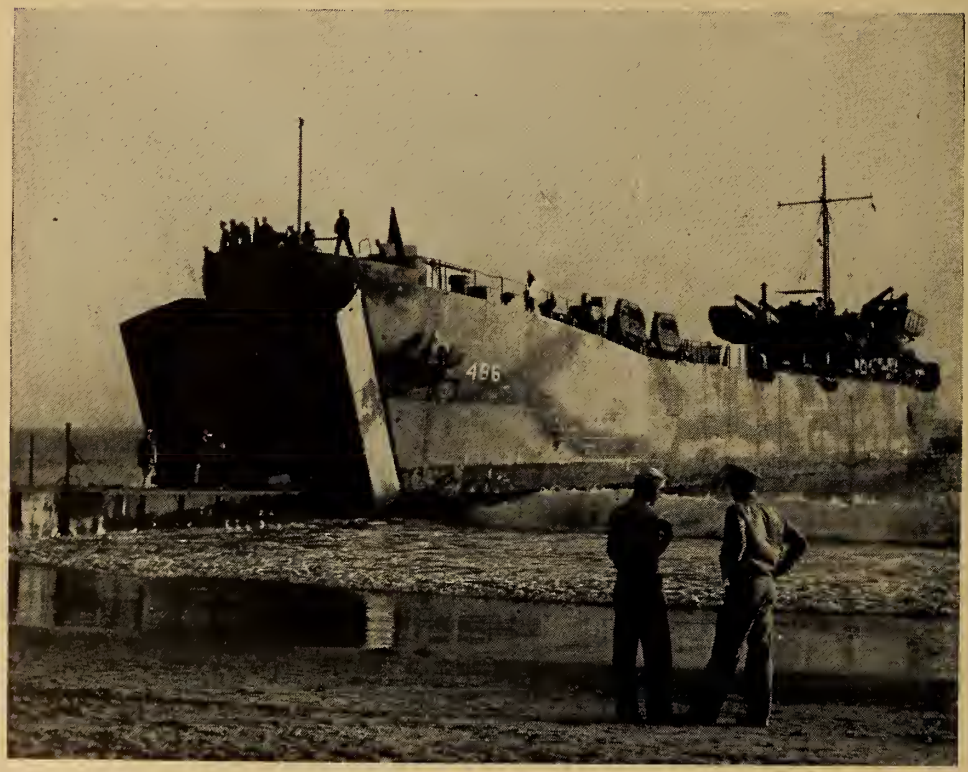
Next to actual combat the most important duty at an advanced base is unloading ships. It is continuous hard work and requires excellent organization. It is of extreme importance in expediting the turn-around of a ship. A substantial part of any cargo is likely to be Army material. Consequently it is necessary that a complete and clear understanding be arrived at well in advance as to the respective unloading responsibilities of the two services.

Proper unloading consists of hoisting the cargo from holds to shore craft (excepting those rare occasions when docks are available for ships to go alongside), unloading from the shore craft to the beach, transferring to trucks and then unloading at dumps. It requires an organization of winchmen and hatchmen and a working party for each hold of the ship; boat crews; a working party for each unloading ramp at the beach and another working party at the dumps. For heavy lifts, cranes are necessary to remove the weights from boats to trucks and then from trucks to dump. Boats, cranes, unloading ramps or docks, trucks, lifts and working parties must be balanced; a breakdown in any link slows or stops the unloading. The most expeditious method of unloading probably is alongside a dock. However, a dock is rarely available in advanced areas; furthermore, a ship alongside a dock is at a disadvantage when a bombing attack occurs with short warning of the approaching planes.

507. Tank Lighters and Ramp Boats

Usually scarcity of dock space or lack of unloading ramps forms the bottleneck in unloading. A sandy beach with sufficient slope and preferably free from coral is capable of being developed into any desired number of unloading ramps. Tank lighters and ramp boats (including LST) if available, permit developing and using unloading ramps. If the beach does not

Long pontoon causeway (two sections) for flat beach.



LST landing on moderate steep-to beach.
Note short pontoon causeway.

LST at Palawan. Jap "Jake" in foreground.

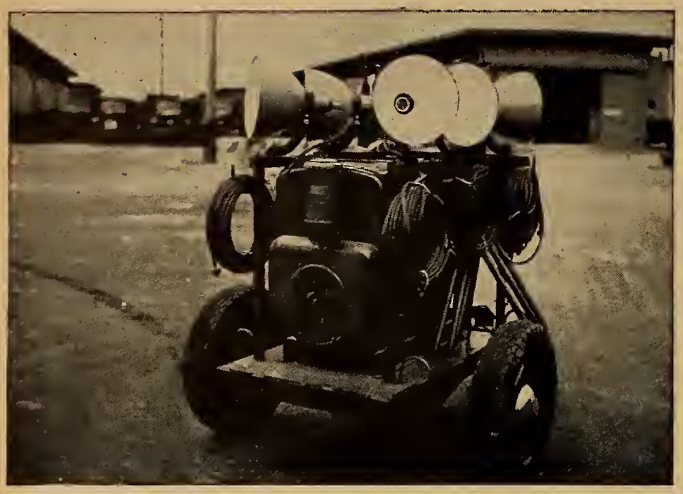
have a sufficient slope so that the boat can run up high enough to drop its ramp beyond the water line, then a combination of pontoon causeways and sand ramps can be placed in position. If sufficient working parties, trucks and cranes are available this method of direct unloading from landing craft is rapid and efficient. Normally, separate shore ramps are developed for rations, ammunition, fuel in drums, vehicles, heavy lifts and other impedimenta, so that trucks can load directly from boats for any one dump. Cranes are needed for heavy lifts, and racks assist in loading drums. Each vehicle unloaded should be manned by an operator and have sufficient gas to permit driving off the boat under its own power. Such vehicles must usually be serviced on landing, particularly if they have been carried as deck cargo.

Unloading ramps can be strengthened with wire mesh (Sommerfeld or other type) to enable trucks to approach the water line as closely as possible. Track-driven vehicles such as caterpillar cranes, however, will destroy this mesh. Without docks, caterpillar cranes or similar equipment must be available to remove heavy lifts from boats to trucks. Bomb trucks and trailers are useful for handling bombs, though the two-wheel drive of bomb trucks leads to trouble in sand. In fact, all vehicles used near the shore line should be four-wheel drive, if practicable.

Landing craft are strong but the service is usually hard; approximately ten to fifteen per cent will be out of commission, with rudder, propeller, ramp or engine trouble. About twenty-five per cent spare batteries should be kept on hand and ample battery-charging equipment should be available. The proper propeller pitch blocks are also necessary. On wooden boats, the forward rise of the bottom (where the boat grounds) is covered with hardwood rubbing planks to prevent holing. These planks should be kept intact. Repair facilities and spare parts for landing craft are always critical and should be conserved to the utmost.

508. Unloading Procedure

The ideal unloading procedure transfers material from boats to trucks and directly to permanent dumps. At times, however, this may not be possible, due to local conditions such as lack of trucks, insufficient working parties at dumps or night unloading when lighted trucks cannot be used. It may be necessary, therefore, to assign an area adjoining the unloading beach for temporary dumps. This should be with cover, if possible, and must extend well clear of the beach so that the dumps when full will not interfere with the unloading of boats. Beaches should be suit-



Portable floodlighting unit (with self-contained motor-generator unit). Used for night unloading.

ably marked with beacons visible from the approaching ship so that her anchorage can be signaled and the ship can anchor without delay. Suitable all-weather roads are necessary for trucks to clear the beaches. Latrines and foxholes should be handy for working parties. Drinking water and provision for meals should be arranged. Intercommunication between ship and beach and between landing ramps is essential.

Working parties should be organized in small groups with an officer in charge of each group. One officer should be in charge of each ramp to direct boats, trucks and other movement. It is desirable to have a liaison officer on each ship to control boat personnel and keep in contact with ship problems and progress. Walkie-talkie communication between ship and shore is desirable and a signal station ashore essential. Every effort must be made to prevent looting, which is all too prevalent and quickly spreads unless each case is sternly dealt with. Unloading is hard, laborious work and the officers must continuously drive their men to the limit of endurance.

Previous determination should be made as to whether there are to be joint or separate Army and Navy dumps for their respective material.

509. Good Will

Unloading presents a multitude of problems for both ship-based and shore-based personnel. Ships are in danger and anxious to get away. Captains have been on the bridge for extensive periods prior to arrival. Shore personnel may come from foxholes or front lines. Roads may be washed out or boats be broken down. Each has little idea of the other's problems. It is helpful, therefore, to consider that all hands are doing their best and void the bitter, discourteous signals that so often appear.

510. Comments on Merchant Ships

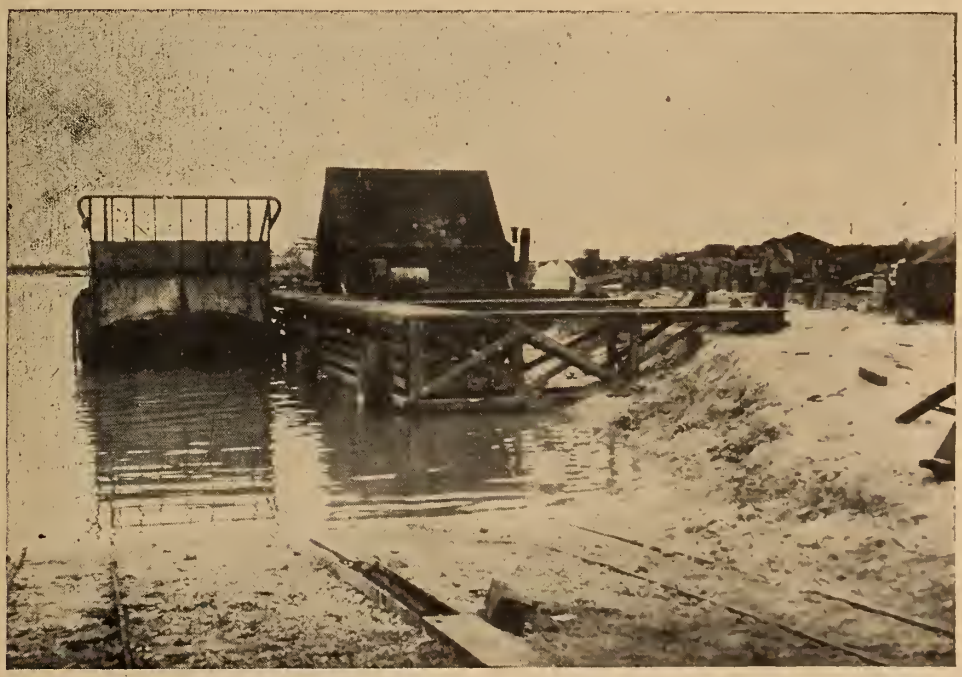
Ships must be provided with proper winches, cargo nets, chine hooks and other unloading equipment. Merchant ships as a rule do not carry cargo nets or chine hooks. These must be put on board at port of departure or a supply be kept at the unloading point. Merchant ships also have a small crew, and winchmen and hatch tenders must be provided for all hatches and in two shifts. A Naval officer familiar with unloading should be put on each merchant ship before departure. Some of the Liberty Class ships have underpowered winches. This makes handling of heavy lifts impossible except by rerigging the booms and hoists at the cost of a slow unloading. Such ships must be used for light material.

511. Marking of Material for Advanced Base Units

Proper procedure for marking of packages for advanced bases is vitally important. The time, work and planning of advanced base movements may be utterly wasted by improper and inadequate markings. The importance of fast and accurate identification of materials in combat areas should be obvious. Carelessness and inattention to this matter can have most serious consequences.

Standard marking procedure for advanced base shipments is clearly and concisely outlined in the

Tractor towing Jeheemy, used for removing small landing craft from water. The Jeheemy will not take an LCM.



Marine railway for hauling LCM's from water. On shore, this railway has an extensive network of tracks built from salvaged Jap material, with switch tracks to boat repair shops.

Beach toboggans towed by tractors.

A regular pallet bar sling in use.

Track drive fork truck for soft beaches, rough ground and heavy going.

Pallet sleds towed in tandem by a T–9 tractor.

Jeep bogged in volcanic ash at Iwo Jima.

Navy Shipment Marking Handbook, the second edition of which was issued by the Bureau of Supplies and Accounts in May, 1943. Instructions cover such matters, among others, as abbreviations, method of marking inside containers, required outside markings, preparation and disposition of shipping papers and appropriate marking examples.

Reports from advanced bases have repeatedly stressed the importance of legibility, safety and durability of markings for overseas shipment. Handling is greatly facilitated by markings large enough to be read from a distance. In mixed Army-Navy cargo, Navy material should be clearly marked "U. S. NAVY." This is particularly true for Seabee equipment which has in some instances been marked "Construction Battalion," leading to confusion with the familiar Army battalion. Explicit marking of certain types of materials may lead to pilferage; it may be better to mark packages containing such items as clothing, small stores, and ship's stores so that they cannot be readily identified by all personnel. Another factor of safety in marking is the problem of protective concealment — too vivid markings may make easier targets for enemy planes. Some reports have indicated that white backgrounds for stenciling may show up at night on deck cargo and open storage. Gas drums should be dark brown, green or black — never yellow or red.

512. Packing of Material for Overseas Shipment

In early shipments to advanced bases considerable material was lost or damaged because of packing inadequate to withstand rigors of a sea voyage. Although great progress has been made in the problem of packing of Navy materials for overseas shipment, the importance of proper packing cannot be overstressed.

Detailed information on this highly technical subject may be secured from the manual *Army-Navy General Specifications for Packaging and Packing for Overseas Shipment,* issued in February, 1943, and amended 15 December 1944. This is procurable from the Bureau of Supplies and Accounts, specification No. 39 P16a.

513. Notes on Previous Advanced Base Movement

Extracts from a report of unloading of Echelon One of Lion Four are presented below to give an example of the manner in which one major movement was handled:

Echelon One, Lion Four—Unloading of

Unloading plans which this echelon of Lion Four had drawn up at San Bruno, California, and en route for the discharge and dispersal of its cargo were radically altered after arrival at destination. This was necessary because the Construction Battalions which had arrived ahead of this echelon, certain companies of which would normally have been assigned in advance to construct jetties and

roads and clear dump areas for it, were either being employed by the Naval Base Commander on construction of urgent base projects such as airdromes for the Army and essential facilities for the Fleet, or were newly arrived themselves and were occupied setting up their own camps while assisting the earlier arrived Seabees on the urgent base projects. These projects had first priority, and all other construction had to wait.

The transport cargo was the first of the four ships in this echelon to arrive at destination. The remainder of the cargo ships in this echelon arrived one week later.

The first material to be unloaded from this ship was the N1A component. Ashore the only camp facilities set up to receive this ship's as well as the whole echelon's personnel were the latrines and the framework and cement deck for the galley. As a result of the Seabees being employed elsewhere, the first echelon had to construct its own camp, finish the galley's frame structure and install the equipment. During this period the ship's personnel were obliged to stay aboard, and men sleeping in the holds interfered with unloading of the ship.

Two hundred men were detailed to put up the tents. Another detail trucked the N1A cargo from the beach upon which it was unloaded to the erection point. At the same time as the Lion was constructing its own camp, Seabee Specials assigned to this echelon were constructing their camp on a separate site.

Roads on the island were poor, and the pontoon bridge, which had to be crossed en route to the camp areas was washed out for several days. Much of the time only weapon carriers could safely cross the bridge which greatly limited cargo loads.

Original plans of this echelon were to disperse all cargo to numbered dump areas. When it was discovered that neither dump areas nor adequate roads were available, the first echelon's command chose a stretch of beach suitable for receiving LCMs. This beach, about 200 yards wide and one-quarter mile long, was used as a combination beach dump. A small jetty was constructed to hold a five-ton crane. The beach was divided into eight component dumps, each about one tenth the size of the original area planned. Later, two other stretches of beach were chosen, one for unloading NSD cargo and the other for unloading ABCD and hospital material and equipment. The original plan of assigning dump officers and gangs for each component was followed on the beach dump. Of immeasurable aid at the beach dump was the large Beachmaster Component, which functioned extremely well.

The first material unloaded, as previously stated, was the N1A Component. As soon as unloaded on the beach dump, this component's material was trucked up to the Lion's camp area. Provisions were next trucked to the camp area where space was set aside to store them. Cargo was discharged from the several ships in the echelon as needed rather than from one ship at a time. Every effort was made to avoid too great an accumulation of material and equipment on the beach dump by dispersing directly upon discharge as much cargo as possible to the activity for which it was intended. P9 material and equipment from one ship was also sent to one point for construction of the Ship Repair Dock, while P9 material and equipment from another of the first echelon's ships was sent to the NSD site for construction of the NSD dock. Naturally, certain components' material and equipment (such as P2 and P8 which was issued to the Seabees as fast as needed) were obliged to remain at the beach dump for a considerable length of time until suitable storage or dump areas could be cleared to receive them. Seabee Special material and equipment was discharged and stored on the same beach dump with the Lion's in an area which was adjacent to their camp.

A truck pool was established at a dump area on the beach dump. Every vehicle in the first echelon was included in the pool. All vehicles were serviced before being issued. A certain number of vehicles were issued to the Seabees engaged in construction of Lion projects. The Lion maintained its own trucks and drivers for dispersal of its own materials.

In this operation the palletizing of cargo proved of great assistance in discharging it on the beach and saved valuable man hours. Further, pallet skids made it unnecessary to provide extra dunnage for protection of cargo dumped on the beach.

D1 component material was eventually unloaded on a beach dump in the vicinity of the site chosen for the NSD. Discharge of this material was delayed until the beach dump was selected and a jetty was built out from it.

Sites for the ABCD and the G2 component were located in the same vicinity. A dump area for materials and equipment for these two activities were set up a quarter of a mile in from the beach. A detail of medical officers and a hospital crew from the G2 component complement handled the discharge and dispersal of P6 material and equipment for the ABCD as well as their own material and equipment.

There was a lack of sufficient small cranes for the unloading of palletized cargo at the beach dump. Without the help of the Tractson Swing Cranes (generally referred to as Cherry Pickers) in the J3c component an unloading bottleneck of severe proportions might have developed. These J3c cranes neatly handled the discharge of the pallets from truck to beach and from beach to truck after dumps were set up.

Dispersal from the beach did not keep up with the rate of unloading from ship to beach because sufficient crane equipment was lacking to handle cargo at the beach dump area and storage space was limited by the size of the beach stretch chosen. Actually, the ships could have discharged cargo faster than it could be received at the dumps. For example, a crane boom aboard ship could discharge four gasoline drums at once, whereas the smaller cranes at the beach dump could handle but two drums at a time. In general, the rate of discharge was regulated well. Although delays occurred when trucks and LCMs were both tied up, no confusion was evident.

There were no important examples of weakly or poorly crated or packed material in the first echelon. Neither was there any evidence of poor labeling. If anything, the opposite was true. Some boxes were labeled in such a way that they practically invited investigation. This was particularly noted in connection with boxes containing valuable gear such as binoculars, photographic equipment and the like. Many of such boxes were labeled "delicate instruments" or "fragile." To the uninitiated such labels meant but one thing—liquor. It was felt by the Lion Four command that identification of the contents of boxes containing valuable gear might best be served by elimination of such terms as "delicate instruments" and "fragile" and the substitution of their respective component numbers and a number identifying the dump area to which they were to be dispersed.

Where the bottleneck occurred in the unloading of the first echelon of Lion Four was (1) at the beach area, because of its limited size and the necessity for using it as a dump, which was not in the original plans, and (2) at the beach dump, because of the lack of sufficient small cranes for unloading palletized cargo. Because of the cargo weight that a pallet supports, palletized cargo must be crane-handled and not man-handled.

Experience of Lion Four indicates that future similar movements would benefit by the following, and for the reasons noted:

1. All BuDocks material in each echelon should be pooled instead of consigning it to the various components. This should be done only with *construction material* for plumbing, lighting, and huts, water system and so forth, and does not apply to BuDocks *equipment*. This suggestion is offered as a result of conditions that existed at the time of the first echelon's arrival. The Seabees already there had used up much of their material, such as piping, in constructing their own camps and major priority projects for the base. Thus the Seabees were obliged to draw upon the BuDocks material in the Lion's various components in order to complete projects for the Lion. Because of this the first echelon's command decided to pool all BuDocks material and to turn control of it over to the Seabees, who then set up their own dump piles and stock rooms. They could use the materials as they wished and were held responsible only for the completed project. Time was saved by this method, and delays and friction were avoided. It was further suggested that future similar movements might stow all BuDocks materials at the loading point in one ship of each echelon or in one or two holds of one of the ships, depending on the amount being shipped, so that such materials might be readily accessible to the Seabees at the unloading point.

2 A nucleus of mechanics (machinists, welders, carpenters, electricians, motor machinists and others) such as are found in the complements of E Components should be included, along with their individual tool kits, in the first echelon of a future similar movement to aid in setting up buildings, mess halls, shops and so on in the event that the Seabees normally assigned to such construction projects might of necessity be occupied on other base projects of urgent priority.

3. The two Seabee Specials assigned to a Lion might well be shipped out with the first echelon, even if this entailed the addition of another ship to the echelon. The one Seabee Special in the first echelon of Lion Four was split up in discharging cargo from the echelon's four ships and was called upon besides by the base to assist in the discharge of cargo from other ships in the harbor. The inclusion of the second Seabee Special in the first echelon would have hastened the echelon's unloading and gained them experience, which would certainly have hastened unloading of future echelons in the movement and greatly aided the base.

4. Each ship in the first echelon should include as topside cargo three LCMs with a small crane in each. With the necessary boat crew to handle the LCMs and the twelve to fifteen stevedores aboard each ship, the first ship of the echelon to arrive at destination could immediately begin discharging cargo on the beach and at the dump area without awaiting the arrival of the main transport with its Seabee Specials. The small Tractson swing cranes or a similar type could be stowed in the LCMs and discharged ashore. The cranes could then be driven up to the LCMs as they land on the beach to discharge cargo, especially palletized cargo.

5 There should be sufficient floodlight trailers for around-the-clock unloading on the beach and at the dumps.

Pontoon pier for barges and small craft.

Chapter VI

PONTOON GEAR AND DRYDOCKS

601. Pontoon Gear

Pontoon gear was developed by the Bureau of Yards and Docks for the purpose of providing a rapid means of establishing landing and docking facilities for advanced bases where limited or no facilities exist. These can be made large enough to accommodate vessels of all sizes and types. The N. L. pontoon has many other applications and can be used to construct barges (towed and self-propelled), causeways and drydocks. The *Pontoon Gear Manual,* Revision of March, 1944, gives a complete description of the gear with illustrations and directions for assembling.

Pontoons for general use are made in two types, one with rectangular sections and one with a curved lower side for use as bow units. Pontoons are also made with sloping decks for unloading vehicles off the ends of the barges. The pontoons making up a string are joined together by four angles with bolts and wedge bolts. The strings of pontoons are then formed into barges and other structures by tying the angles together with links and pins and by tie rods. In this way it is possible to build a pontoon structure of any desired length and width. In order to keep the pontoon gear as nearly standardized as possible certain sized structures have been designed as standard.

Barges are assembled in three standard sizes — the 50-ton, 100-ton and 250-ton capacity. While it is possible to make several different assembly arrangements to obtain these capacities, the units selected have been found the most suitable for these requirements, and their characteristics are as follows:

	50 Tons	100 Tons	250 Tons
Number of pontoons wide	3	4	6
Number of pontoons long	7	12	18
Beam	21 feet	28 feet	43 feet
Length	43 feet	72 feet	107 feet
Draft light	20 inches	20 inches	20 inches
Draft loaded	48 inches	44 inches	48 inches

Propulsion units have been developed for mounting on pontoon barges and are nearly always installed on them. Propulsion units are capable of propelling the barges at speeds from three to six knots depending upon the size of barge and number of propulsion units employed.

Pontoon barges have many applications, including support for cranes, dredges and pile drivers. They are used for transporting fuel and water; as net tenders, ice breakers, seaplane tenders, ordnance barges and so on. Drydocks of various dimensions and capacities up to 800 tons can be made from pontoons.

Pontoons are shipped by various means. To conserve shipping space, some are sent in knocked-down form for fabrication in plants operated by special Seabee detachments (PADs). They are also assembled into strings and carried on the sides of ships. Some have been assembled into barges and towed for distances of 6000 miles. However, the most frequently used method is to load them directly into the holds of cargo vessels. A 10,000-ton vessel can transport about 1900 cells.

602. Some Recommendations for Pontoon Gear Operation

(*a*) The use of pontoons assembled into wharves is more efficient for unloading cargo than is the use of pontoon barges.

(*b*) Personnel should receive instruction in the operation and maintenance of propulsion units the same as for any other powered craft.

(*c*) Pontoon gear is shipped in packages to make up certain assemblies. Care should be taken in storing this gear to keep these assemblies together and when standard structures are assembled only the packages marked for that assembly should be used. Although the parts are interchangeable, confusion and waste will result in indiscriminate use of the packaged assemblies.

(*d*) Time should be spent in properly locating and building adequate ways on which to assemble the strings. Poor planning and construction will prove to be very costly when the operation of assembling strings gets under way.

(*e*) In general, pontoon gear should be used in protected waters for best results.

603. Drydocks—ABSD, ARD, YFD, AFD, AFDL

The information contained herein is of a general nature; more specific data can be obtained from the *Drydocks Operating Manual.*

The following types of drydocks are used at advanced bases:

(*a*) *Advanced Base Sectional Docks* (ABSD 1 and 2).—These are steel docks built in ten sections. Each section is shaped for towing and is completely equipped with crew quarters, power-generating equipment, fresh-water distilling plant and other facilities needed for towing. The sections are assembled into the complete dock at the advanced base. The assembled dock's basin is 827 feet long by 133 feet, 7½ inches clear width and it has a draft over the blocks of 46 feet. Total lifting capacity is 90,000 tons at 18-inch pontoon freeboard, or approximately 108 tons per linear foot of bearing along the keel line. Complete shops for carrying out routine repairs to ships incident to drydocking and for maintenance of the dock itself are provided on two barges and in the wing walls. Each wing wall also has a traveling 15-ton capacity (85-foot radius) crane. The complement is 25 officers and 646 men. All ships, including the largest BBs and CVs, can be docked.

(*b*) *Advanced Base Sectional* Dock (ABSD 3).—This is a nine-section steel dock provided with facilities similar to those described above. The assembled dock's basin is 744 feet by 133 feet, 7½ inches and it has a draft of 46 feet over the blocks. Total capacity is 81,000 tons at 18-inch pontoon freeboard, or approximately 108 tons per linear foot of bearing along the keel line. Will dock all BBs and CVs.

(*c*) *Advanced Base Sectional Docks* (ABSD 4 to 7).—These are seven-section steel docks with facilities

DREAMS OF GLORY

similar to the above docks. Basin dimensions are 725 feet long by 119 feet, 6 inches clear width by 39 feet, 10 inches draft over the blocks. Total lifting capacity is 55,000 tons at 18-inch pontoon freeboard, or approximately 77 tons per linear foot of bearing along the keel line. They have a complement of 25 officers and 605 men. All cruisers, all carriers up to and including CV9 class, and many battleships within the draft limitation can be docked.

(*d*) *Auxiliary Repair Docks* (ARDs).—These are mobile, one-piece, closed-bow, steel docks ship-shaped for ease in towing and equipped with rudders. They are fully equipped with quarters, galley, shops, generating capacity, evaporators and so on, to be self-sustaining, and provide necessary service and routine repairs to ships docked. A carpenter shop and stowage area is provided by a barge alongside. Two cranes are provided, with a 5-ton capacity at 35-foot radius. The complement is 5 officers and 118 enlisted men. There are the following three types of ARDs:

(1) ARD-1.—Basin dimensions, 360 feet long by 41 feet, 4 inches clear width, 20 feet draft over the blocks and 2200-ton total lifting capacity. All destroyers except leaders and the 445 class up, and all submarines up to and including BONITA can be docked.

(2) ARD-2, and 5 to 11.—These have basin dimensions of 410 feet long, 49 feet, 4 inches clear width and a draft of 21 feet over the blocks. Total lifting capacity is 3000 tons. All destroyers and submarines can be docked.

(3) ARD 12 to 32.—Same as ARD-2 class except clear width is 59 feet, 3 inches so LSTs can be docked.

(*e*) *Yard Floating Docks* (YFDs).—Certain of the three-piece self-docking YFDs are militarized and available at advanced base areas. They are similarly equipped to the above docks and are self-sustaining. Two cranes with 7½-ton capacity at 60-foot radius are available. These docks have a total capacity of 18,000 tons at 18-inch pontoon freeboard, or approximately 32 tons per linear foot of bearing along the keel. Dimensions of the basin are 552 feet long by 91 feet clear width by 28 feet, 8 inches over the blocks. Cruisers and smaller vessels can be docked. Complement is 5 officers and 105 men.

(*f*) *Auxiliary Floating Docks* (AFDs and AFDLs).—These are one-piece steel open-end docks with sufficient facilities to be self-sustaining. Small craft and certain submarines may be docked. One officer and about 30 men are berthed and messed on a barge alongside.

(1) AFDs.—Basin dimensions, 200 feet long by 45 feet, 6 inches clear width and draft over blocks of 14 feet. Total lifting capacity is 1000 tons at 16-inch pontoon freeboard. Two 6000-pound capacity stationary derricks are provided.

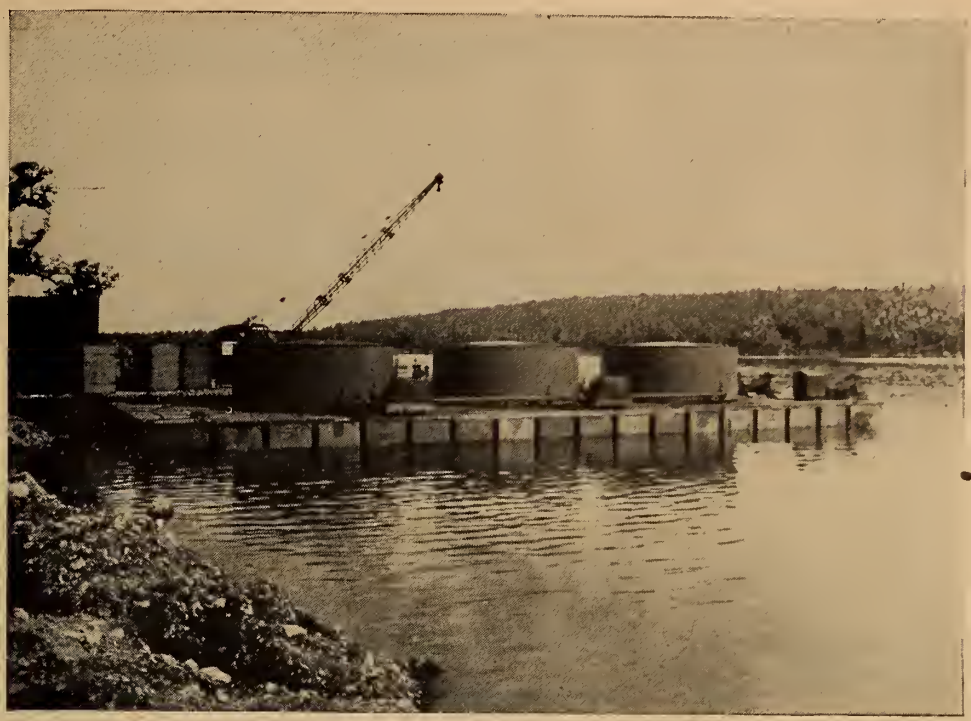
(2) AFDLs.—Basin dimensions, 288 feet long, 45 feet, 4 inches clear width by 18 feet draft over the keel blocks. Total lifting capacity is 1900 tons at 9-inch pontoon freeboard.

In addition to the above, which are military docks designed for overseas operations, there are a number of other YFDs of steel and timber and ARDCs of concrete, of various lifting capacities and sizes, which are essentially for yard use. Many of these are not self-contained and depend on the shore station for power, shop and other facilities. Some of the ARDCs are militarized and may in the future be stationed at advanced bases. These have similar facilities to the ARDs, including cranes, and have basin dimensions of 389 feet by 56 feet by 19 feet, 6 inches over the blocks. Capacity is 2800 tons at 12-inch pontoon freeboard.

The Bureau of Yards and Docks also has a number of sizes of small docks made up of N.L. pontoon gear. These are primarily for PT boats and small ships up to about 800 tons. These docks are assembled at the advanced base (usually by Construction Battalions) and are then turned over to the unit which has use for them. They have no facilities aboard and may be operated by a few men. Experiments are under way to make larger docks of this type and it is not unlikely that pontoon docks capable of lifting 1000 to 2000 tons will be in use in the near future.

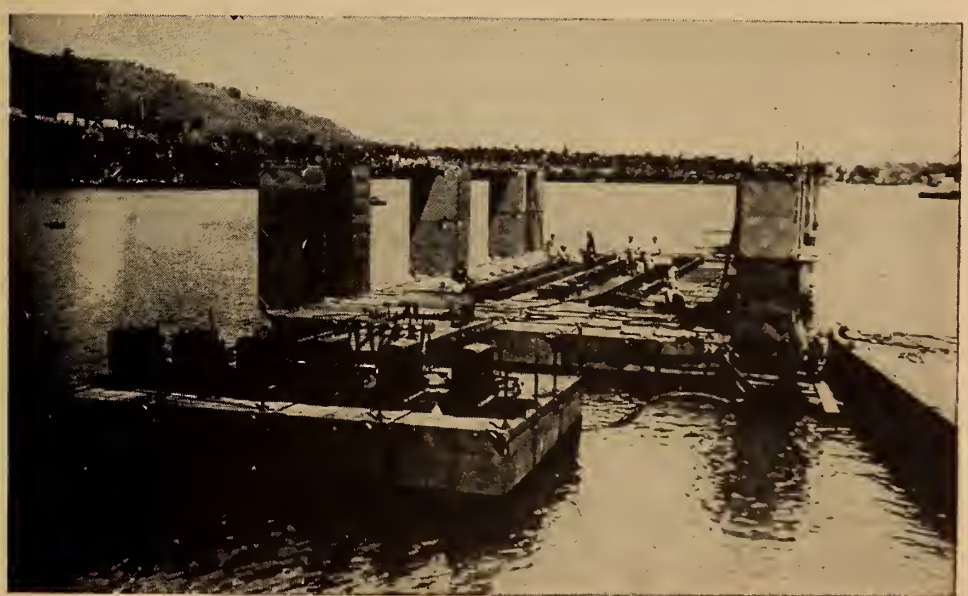
In general, drydocks are operated by regular crews who are responsible for the maintenance of the dock itself and for certain routine repairs and painting of ships docked. In this latter respect, the ship's force must also be used. Extensive repair of ships within a dock is normally done by special repair crews assigned from base repair facilities.

The location for floating drydocks should be chosen with due regard to wind, tide and current conditions, other navigational hazards, depth of water available, vulnerability to enemy attack and proximity to other repair facilities that may be needed to augment the dock facilities.



Fuel tank pontoon barge.

Pontoon PT boat drydock.

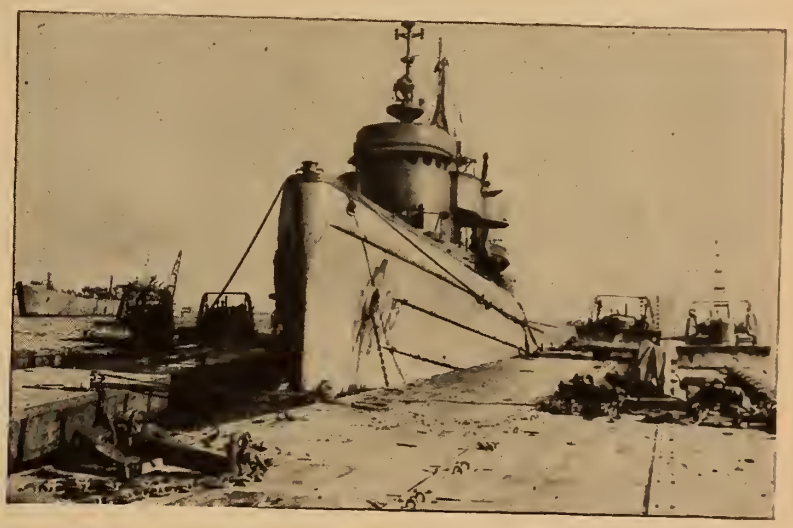


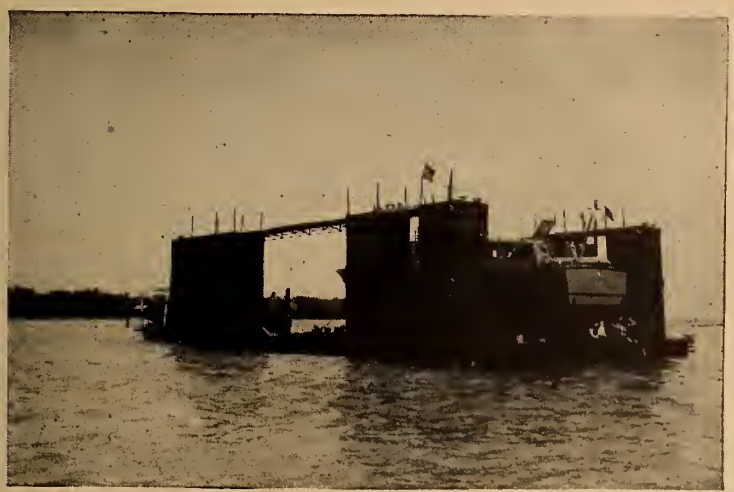
Pontoon dock.

Side carry of pontoon assembly (2 x 12 section).

Pontoon barge with sea mule propulsion units.

Towing two preassembled pontoon piers.





Pontoon drydock with picket boat.

Congestion of cargo on a narrow beach.
Construction under way in background.

Chapter VII

PORT ORGANIZATION

701. Port Facilities

The prompt establishment of port facilities is of urgent importance to any advanced base. Naturally, the first step is to provide proper unloading facilities. However, the Port Organization must be ready to function immediately upon occupation.

Ships entering port must be advised on the following:

Swept channels for entrance.
Anchorage assignment.
Location and assignment of unloading beaches or wharves.
Priority of unloading ships.
Hydrographic information.
Communication information.
Facilities for urgent repairs.
Availability of supplies—where and how to obtain.
Numerous other matters which can only be handled by an alert and well-organized Port Director organization.

The base personnel should take the initiative in providing this information to incoming ships.

702. Port Director

Under the Base Commander, this officer is in charge of all harbor activities relating to the routing, husbanding and turn-around of cargo ships as well as the piloting, berthing and harbor movement of all shipping. He furnishes masters with copies of all local orders and assists them in every way possible. The officers under him consist of specialists in their particular line who assist him in his duties. Through his routing functions, the Port Director is responsible for the safety of the ships until they reach their next port of call. He should know shipping operations from the practical point of view of the deck officer as well as the ship operator.

703. Assistant Port Director

This officer acts as Executive Officer in charge of administrative functions and routine matters of the office when no Administrative Assistant is assigned to the unit. In large or special units this officer acts as an assistant to the Port Director in supervising the operations of the port. In small units he acts as Operations Officer. At all times he should be able to take over in the absence of the Port Director.

704. Administrative Assistant

The duties of Executive Officer are handled by this officer. All administrative functions and routine matters with subordinates in the Port Director's Office are his responsibility. He should be able to take over in the absence of the Port Director and Assistant Port Director.

705. Operations Officer

This officer handles all port operations and may also act as Base Operations Officer. The Harbor Master works with him in assigning berths and providing pilots, tugs, barges and so forth as required for harbor movements. Operation of all craft assigned to the Port Director's Office are under this officer's direction. He is responsible for accurate information as to location and movements of all vessels within the port as well as prospective arrivals and departures. He is also responsible for the preparation of a daily "Ships Present" list.

The installation, maintenance and removal of fleet moorings and navigational aids is performed by such suitable agencies as may be available (Coast Guard units, salvage details, net defense facilities, Seabees and so on) under the general direction of the Operations Officer.

706. Harbor Master

Under the Operations Officer, the Harbor Master is in charge of piloting, berthing and traffic movements in the harbor and is responsible for keeping a careful check on the latest navigational and hydrographic information. He should be a qualified watchstander and a man of experience and judgment.

707. **Routing Officer**

This officer maintains the files of "Q" messages, hydrographic information and submarine reports. He issues all routing instructions to ships, together with any pertinent information he may have and makes certain that these instructions are understood. He is responsible for the accuracy of the arrival and departure reports. General instructions and procedures for Routing Officers are issued by the Commander in Chief, U. S. Fleet. These must be understood and followed. Officers are usually specifically trained for this duty. When no Hydrographic Officer is assigned to the unit, the Routing Officer is responsible for maintaining the records and files of all charts as well as ordering and issuing them as required.

703. **Cargo Officer**

This officer supervises the handling and distribution of cargo. He is responsible for the booking of all outbound cargo and the preparation and dissemination of all cargo documents. He must have a knowledge of stevedoring and shipping.

709. **Communications Officer**

The Communications Officer is responsible for the proper wording and handling of communications in the Port Director's Office. He maintains a very close liaison with the Base Communications Officer regarding visual communication, as the proper operation of this branch of communications is most essential to the efficient functioning of the Port Director's Office. In the absence of a Registered Publications Officer he maintains a complete and up-to-date set of confidential publications in the Port Director's Office. He inspects ships' confidential papers and publications, making necessary corrections and issues to insure their being complete.

710. **Supply Officer**

This officer acts in a liaison capacity between the Supply Officers and Masters of vessels, and the base supply depot. He assists in obtaining supplies of all types that may be required by vessels calling at his port.

711. **Armed Guard Officer**

This officer handles all problems of the Armed Guard crews aboard merchant vessels. He assists the Supply Officer in obtaining supplies required by Armed Guard crews. He makes a physical inspection of all ordnance equipment as well as living spaces of Armed Guard crews. He takes necessary action on all reports turned in by Armed Guard Commanders.

712. **Tanker Liaison Officer**

This officer is responsible for fueling all vessels and supplying all marine lubricating oils. In addition, he is responsible for seeing that sufficient storage space for oil is available prior to the arrival of tankers. He maintains liaison with the Routing Officer to

see that the destination of tankers is known sufficiently in advance and that routing instructions are delivered in time to prevent any delay in tanker turn-arounds. It is necessary that he have a knowledge of fuel-oil storage, pumping equipment and petroleum products.

713. Hydrographic Officer

The Hydrographic Officer is responsible for maintaining all records and files of charts and H.O. publications as well as ordering and issuing such charts and publications.

714. Registered Publications Officer

Under the general supervision of the Custodian of Registered Publications this officer maintains a complete and up-to-date set of all confidential publications used by merchant vessels. He checks the publications of all merchant vessels and corrects or issues new publications to insure their being up to date. He prepares the identification signals for all merchant vessels.

715. Surface Transportation Officer

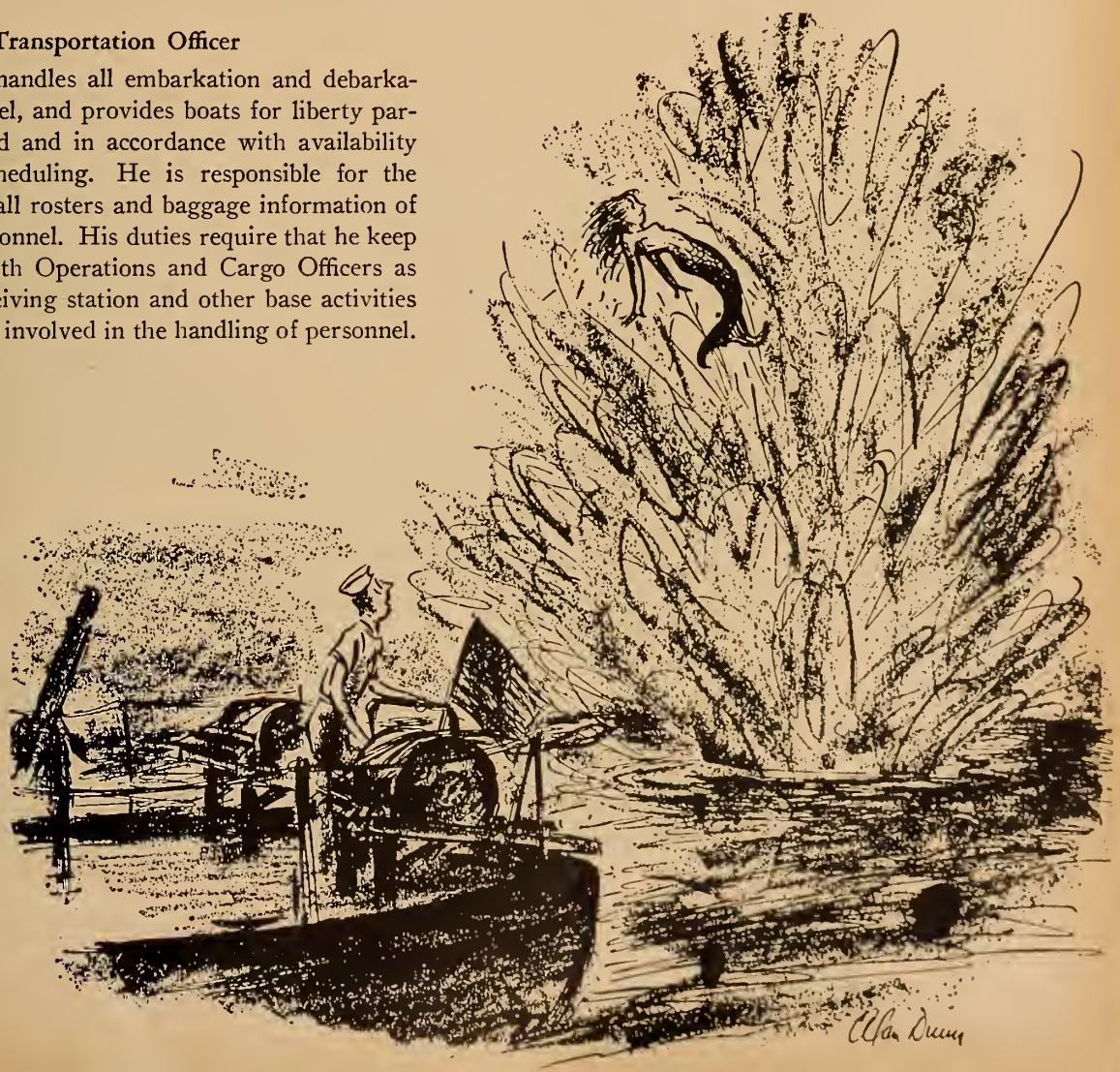
This officer handles all embarkation and debarkation of personnel, and provides boats for liberty parties, as required and in accordance with availability and proper scheduling. He is responsible for the preparation of all rosters and baggage information of embarking personnel. His duties require that he keep close liaison with Operations and Cargo Officers as well as the receiving station and other base activities which might be involved in the handling of personnel.

716. Boarding Officers

These officers board all incoming vessels, obtaining pertinent data. They distribute all port information and applicable base orders. When required, they collect cargo papers for delivery to the Cargo Officer. It is desirable for one of these officers to be assigned to the Cargo Office and one to Surface Transportation in large ports. It is essential that these officers board incoming vessels promptly.

717. Repair Officer

This officer makes a physical inspection of vessels requiring repairs and acts as liaison officer with the various repair facilities of the base. He assists in every way possible to insure that the repair work is completed as rapidly as possible.



Airfield construction gets under way.

Widening a fighter strip.

Chapter VIII

LAYOUT OF A BASE

801. General

The proper layout of an advanced base is a matter of utilizing the natural features of a site in such a way as to attain the optimum combinations of necessary characteristics, such as efficiency, defensibility, camouflage, dispersal, adequate and safe water supply, adequate sewage disposal and accessibility of facilities and quarters. The direct responsibility for base layout lies largely with the Civil Engineering Corps officer in charge of construction.

The prompt establishment of adequate port facilities is a matter of utmost importance. It will be impossible to construct a base of any magnitude in an orderly and rapid manner if the unloading and transportation and storage facilities are not well planned. The close relation between transportation, storage and unloading must be borne in mind at all times.

The first step in the layout of a base is the study of the area in which the base is to be built in relation to suitable locations for the establishment of landing beaches, wharves, roads and supply dumps. In every base consider the question of proximity to mosquito-breeding areas. One mile is the minimum distance which is reasonably safe, two miles is preferable. Experience has shown that the same holds true for native villages, as these have been prolific sources of infection. If the site of a native village is the only one suitable for the base, the village should be moved.

802. Factors in Base Layout

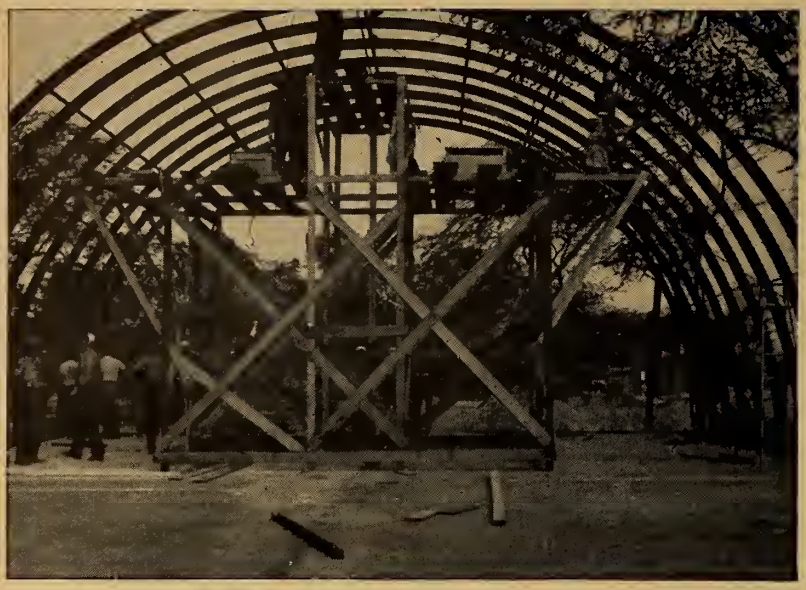
The prime consideration in any layout must be operational requirements. Usually the civil engineer is not called upon to make decisions concerning operations, and his problem in layout begins with the general location having already been selected. The subject of layout from the standpoint of the officer in charge of construction is discussed in the BuDocks handbook *Location, Design and Construction of Advanced Bases.* Among the specific factors in layout, topography is, generally speaking, the most important. In the construction of an airfield, hills and valleys and direction of the prevailing wind are of prime importance. If the advanced base is to have the airfield as its main operational function, then the location of the airfield may be the major starting point in a base layout. If on the other hand, the base is to have as its main operational function a base for PT boats, then the depth of water in the harbor and the natural features of the shore line may be the controlling topographic features. Soil conditions, water supply, drainage, availability of materials on the site, concealment, dispersion and many other factors have a direct bearing on base layout.

803. Priority of Steps in Setting Up a Base

(*a*) *Living Facilities.*—Normally the first job on a wholly undeveloped base is the building of living facilities. The men must first have a place to live. This includes establishing a water supply, messing facilities and all the necessary auxiliaries such as refrigeration and power. If, for operational reasons, great speed is required in setting up the base, the living facilities may be only temporary, with all housing under tents.

(*b*) *Operational Facilities.*—Normally the second step in advanced base layout is the construction of the principal operational unit. This may be an airfield, destroyer base, fueling depot or seaplane base. This project in itself may be very extensive and it is often necessary to set up a priority schedule which lists the relative importance of the units comprising the whole. In one instance a hospital may be considered of great importance; in another fuel storage may be the most urgent need.

(*c*) *Arranging and Changing Construction Priorities.*—In general, these priorities are set up by the Commanding Officer. In many instances, however,



Construction of SSAR Quonset (40′ x 100′).

the officer in charge of construction may play an important part in the decisions regarding relative priority. For example, it may be impractical from an engineering standpoint to construct a fuel-oil installation until adequate roads have been built for the movement of materials. Lack of certain materials may often necessitate the rearrangement of priorities. On one advanced base job the construction of the nose hangar was delayed as no heavy timbers were available for the roof truss. The nose hangar was of the highest priority but was not completed until some time after the hospital, which was low on the list.

New type tropical Quonset hut (20′ x 48′).

804. Aviation Problems

At nearly all advanced bases the immediate operation of aviation will be of prime importance. In enemy-occupied areas airfields may be in various stages of completion. Other areas may, but probably will not, have airfields. If the base is within range of enemy bombers, immediate fighter protection is vital. If the base is intended to support air operations, fields must be immediately constructed, completed or repaired. Airfields at advanced bases can be roughly divided into three classes for planning:

(*a*) Airfields immediately available but damaged.

(*b*) Airfields partially completed.

(*c*) No airfield construction started.

Each of the above, in turn, may be designated as fighter fields, bomber fields, very long range bomber fields or a combination of these.

805. Immediately Available and Partially Completed Airfields

In entering territory occupied by the enemy, our forces will commonly find airfields either wholly or partially completed. These would be expected to be damaged by our own forces in the attack or by the enemy upon withdrawal. The basic foundation and surface of completed fields, however, should generally be intact. Unfortunately Japanese standards of subgrade design are usually inadequate for continual operation of our PB4Ys. Incomplete fields in some cases may be captured in such condition that completion is possible fairly quickly. In these cases immediate steps to put the field in readiness to receive planes would be called for. In order to undertake preparation of the field without delay, certain personnel and equipment should land immediately behind the assault troops. The exact number of personnel and amount of equipment depends on the speed with which the next echelon can arrive, the shipping space available and opposition expected on first landing. In case of damaged fields it will be necessary immediately to:

(*a*) Fill, tamp and level bomb or shell holes in the field.

(*b*) Repair or install temporary field lighting, using kerosene flare pots until other equipment becomes available.

(*c*) Set up messes, camps with latrines, and foxholes for ground crews and flight personnel.

(*d*) Locate bomb, gas and ammunition dumps.

(*e*) Be prepared to fuel and arm planes. This requires gas trucks, hand and engine-driven gasoline pumps, bomb trailers, and machine-gun belt-linking machines.

(*f*) Set up operations center and ready tents for flight crews.

(*g*) Set up radio communications between planes in the air and operations center.

Tent camp at Tinian.

(*h*) Set up radar installations and fighter direction centers.

(*i*) Set up air-raid warning system.

With less urgency but as soon as possible it will be necessary to:

(*a*) Survey existing fields and possible sites for other fields for development, including taxiways, parking strips, revetments, bomb shelters, dispersal areas, drainage, and camps for transient plane crews.

(*b*) Determine equipment required for developments planned.

(*c*) Determine necessity for location of and material for gas tank farm.

(*d*) Land additional refueling, rearming and construction equipment.

(*e*) Land facilities for salvage and local repairs of planes.

(*f*) Land necessary spares for upkeep of planes.

(*g*) Prepare camp sites for transients such as bombing groups from neighboring islands.

806. Layout of New Airfields

(*a*) *General.*—Conditions considered of primary importance in the planning of advanced base airfields are:

(1) A well drained area.

(2) Long axis of the area within 22½ degrees of the direction of the prevailing winds.

(3) Location close to sources of coral or other suitable paving materials.

(4) An area that affords concealed dispersal areas for airplanes.

(5) Adequate space for proper length and width of runways and dispersal areas (approximately 1500 feet by 8000 feet).

(*b*) *Drainage.*—Good drainage is a vital requirement for all airdromes. Accumulations of surface water on runways should be avoided as they are hazardous to aircraft operation. The drainage system should be designed to:

(1) Remove all surface water quickly from operating areas such as runways, taxiways and parking areas.

(2) Intercept and divert surface and ground water flow originating on land adjacent to airdrome operating areas.

(3) Remove or intercept detrimental ground water.

(*c*) *Prevailing Winds.*—The direction of a runway, within the physical limits of the area, is determined by the prevailing winds. The permissible deviation of the direction of a runway from the prevailing wind can vary inversely as the velocity of the wind. With wind velocity less than six miles per hour, divergence has no effect. With wind velocity over twenty miles per hour runways must be within 22½ degrees of the wind direction. Where the wind rarely exceeds fifteen miles per hour, it is permissible to diverge a maximum of forty-five degrees for an all-purpose runway.

(*d*) *Dust Problem.*—The dust problem is best coped with by locating the runway five to ten degrees crosswind. Thus a dust cloud produced by the taking off of a plane will be blown diagonally across the runway, reducing the time for the clearing of visibility.

(*e*) *Availability of Local Materials.*—No site should be selected without first determining the availability of materials necessary for the type of improvements contemplated. Suitable locally available materials must be used to the fullest extent. Such materials need not always meet normal specification standards so long as they are effective for meeting service needs. It should be kept in mind that materials not locally available must be procured and transported to the site and that the arbitrary rejection of local materials, just because they do not meet normal specifications, may so increase the time and the transportation effort involved in the development of a particular site as to remove that site from consideration.

(*f*) *Concealment.*—If possible, an area with natural cover should be selected for dispersal areas, as this will reduce the amount of camouflage necessary to conceal airplanes and facilities. Areas should preferably contain the cover of tall trees, and natural cover should be preserved where possible.

(*g*) *Taxiway Layouts.*—Taxiway layouts should provide for a definite taxiing pattern that does not necessitate turning around and taxiing against traffic on the runway or turning off on the shoulder along the runway. The channeling of traffic off the end of the runway gives good traffic control, makes for safe operation and, in addition, reduces to a minimum the danger to airfield lighting equipment, as planes so channeled are less likely to run over cables and cones along the side of the runway.

(*h*) *Requisite Dimensions.*—(1) As a rule, the primary all-purpose runway should never be less than 7000 feet in length. The only exceptions to this occur when the physical limitations of the area may not provide this length. In this case, an absolute minimum of 5500 feet is permissible for PB4Ys, provided that it is in the direction of a wind averaging over ten miles per hour. A length of 8000 feet is preferred for the Army B-29 Super-Fortress.

(2) In evaluating the width of an area, it is a minimum condition that seventy-five-foot shoulders on both sides of a 150-foot runway be provided for fighter fields. For bomber fields, 150-foot shoulders are required on both sides of a 150-foot runway, and for very long range bombers, 200-foot runways should be provided. It is further highly desirable that sufficient space outside of the shoulders is afforded for parking all aircraft that will be operating from the airfield at any one time. Parking on the shoulders, though sometimes necessary, is always hazardous.

(3) Dispersal areas should be located not more than one and one half miles from both ends of the runway in the case of heavy bombers, and not more than 2000 feet from the prevailing lee end in the case of fighters. Parked planes in these areas should not be in straight lines. Dispersal areas for fighters should be as close to the take-off position as possible.

(*i*) *Runway Grades.*—(1) A straight longitudinal grade not greater than one per cent is preferred. Such grades, however, will seldom be capable of development without excessive earthwork; therefore, variation in grades is permitted, under certain conditions.

(2) Sufficient transverse grade must be provided to handle surface drainage. Too much slope introduces a ground loop hazard to aircraft operation. Maximum permissible transverse slope is two per cent for all runways.

(*j*) *Surfaces and Bases.*—Airfield runways, taxiways and hardstands will generally be surfaced with local materials such as coral, stabilized volcanic rock or gravel. Required pavement thickness depends upon the anticipated wheel load and the strength (bearing ratio) of the subgrade. Each airdrome is an individual problem and depth of surfacing must

be adjusted to suit field conditions. Coral fighter strips, taxiways and hardstands will generally require from six to twelve inches of well compacted coral, and bomber strips will require from twelve to twenty-four inches.

Pierced plank or other steel surfacing material may be used to meet temporary emergencies and in general should be replaced as soon as possible with local materials. Asphalt surfacing is resorted to for major airfields where large scale and long continued operation of PB4Ys and B–29s is planned.

(*k*) *Dispersal.*—Every effort shall be made to provide maximum practical dispersal for aircraft within the geographic limitations of the airfield site. The following general policy regarding dispersal shall be followed as far as practicable:

(1) Location of a few hardstands or revetments for parking interceptor planes, within easy access of the landing strip.

(2) Construction of other revetments and hardstands scattered through the dispersal area, or in several separate dispersal areas, taking advantage of natural cover afforded by terrain and vegetation, and removing the majority of parked aircraft from the immediate vicinity of the runway. Revetments are only provided when severe or frequent enemy raids are logically to be expected.

807. Airfield Lighting

Standard field lighting for advanced bases is essential to safe airfield operation. During the initial stages of operation, while construction machinery is still working around the runway, it may be desirable to use kerosene flare pots to prevent undue damage to cable-connected equipment. In such cases, when the airfield may be subjected to enemy attack, it may be necessary to station personnel near the flare pots in order to black out runways on short notice. As soon as feasible, the standard advanced base cable-connected field lighting equipment should be installed to provide remote control and the proper quality of lighting. It is essential that the layout and color standards indicated in the publication accompanying the equipment be adhered to, in order that flying personnel may have no difficulty in interpreting the meaning of the lighting signals.

It will often be found that damage to field lighting equipment will be considerable during early operations, due to enemy action, vehicles, machinery, and taxiing aircraft. It is necessary, therefore, that a rated electrician's mate be assigned the task of keeping the equipment in repair during daylight hours, and another be available to operate and make emergency repairs during darkness. Quantities of spares must be kept on hand at all times.

Generators, that can be used with the first installation and subsequently as standby generators, are supplied with the field lighting equipment. Equipment is also supplied which allows connection of field lights to the control tower power, thereby giving the control tower operators instant control of the field lighting equipment.

The technical information supplied with the H10 Component covers completely the standards of color sequence and layout for airfield lighting equipment, provides information on obstruction lights, taxiway lights and so on, and gives practical hints for maintenance.

808. Seadrome Lighting

The provision of standard seadrome lighting facilities is essential to advanced base operation in the launching and recovering of patrol and transport planes during darkness. It is very important that standard seadrome lighting layouts be used, in order that flight personnel may readily interpret the signals and distinguish the safe operating areas.

During the initial stages of advanced base establishment, it will no doubt be necessary to operate with a single lane of seadrome lights, placing and removing the lights for each period of operation. As soon as the necessary survey of water depths has been completed, it will be desirable to lay out seadrome channels and to light these channels. The channel type of seadrome layout is preferable, for the operating area often will contain floating debris. With a completely lighted channel, the flight personnel are given the maximum information for safe flight procedures and, in addition, operations personnel responsible for keeping the seadrome area safe for operation have a definite area outlined, which can be swept clear of debris and patrolled.

The standard advanced base seadrome lighting equipment consists of a battery-operated, buoy-mounted lighting unit with each light controlled individually. It will therefore be necessary, when danger of attack is imminent, to have sufficient crews alerted

to black out the area in a short time. A rated electrician's mate should be assigned the task of maintaining the seadrome lighting equipment. Stocks of batteries and other spares are essential to keep seadrome lights in operation.

The technical information supplied with the H11 Component completely covers advanced base use of seadrome lighting.

809. Location of Fuel Tanks

Security, availability and a minimum amount of construction work should be the chief items influencing choice of location for fuel storage at advanced bases. An ideal situation would be for all the tanks to be at the same height, and all underground. At advanced bases, however, hillside or valley locations are ordinarily the closest to optimum conditions that can be obtained. In the siting of storage units for gasoline and oil, the use of all the natural protection available is very important. Woodlands and clumps of trees are highly desirable as locations for tanks. When facilities cannot be concealed or adequately protected from attack, they should be so disposed that not more than two tanks are in any one straight line.

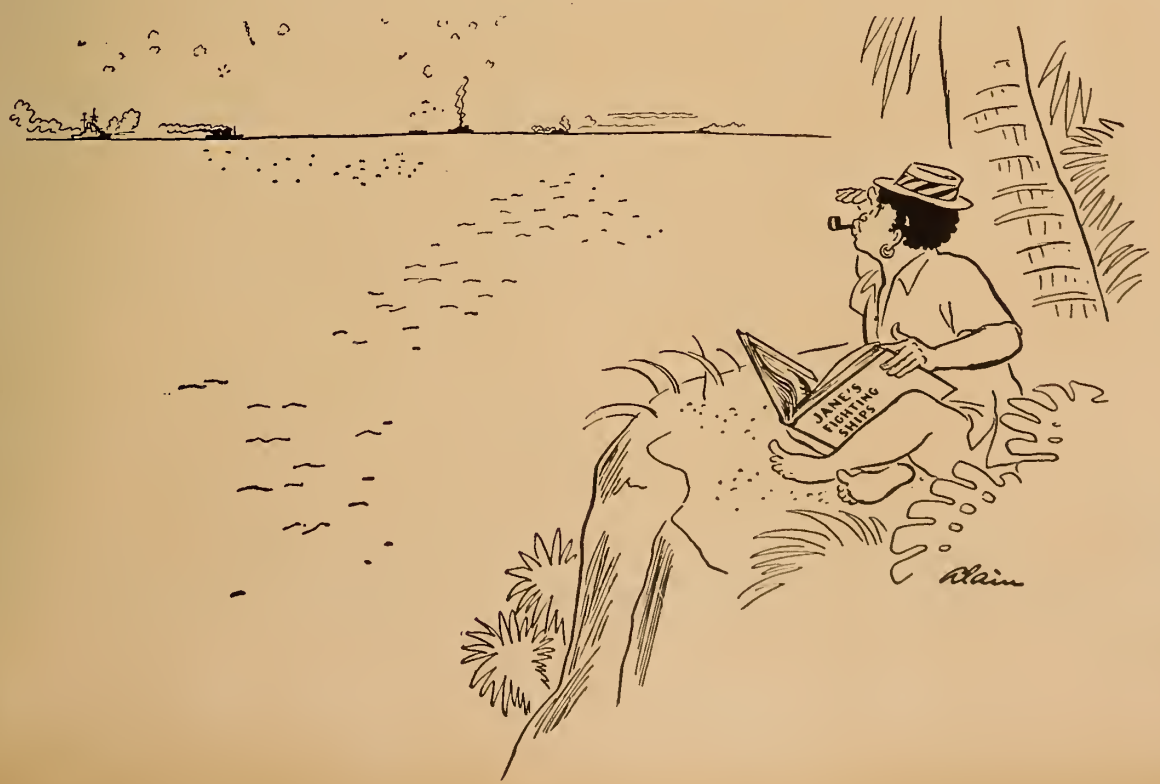
In general, it is most satisfactory to have the fuel system in a closed loop formation. Thus, if a pipe line is damaged at one point, the fuel is still available through the other segment. The tanks should be near enough to the shore so that the tanker pumps will suffice for pressure in filling. The farm must be on a shore the slope from which is gentle, in order that the submerged lines to the anchorage may be subject to as little stress as possible.

Gasoline tanks for aircraft fuel are, at advanced bases, usually 1000-barrel bolted tanks, above ground. Since there is no efficient fire-fighting apparatus available against high-octane gasoline conflagrations, dispersal is the best protection. Camouflage is important, even more so here than for the fuel-oil tanks because of the higher volatility. At outlying locations at advanced bases, gasoline is usually stored in 5000-gallon underground tanks. Usual engineering common sense dictates the choice of location for these tanks.

BuDocks' restricted pamphlet *Advance Base Fuel Storage,* Revision of February, 1945, contains drawings of Lion, Cub and Acorn tank farms and valuable hints on locations and construction.

810. Location of Repair Facilities

Maintenance and repair facilities should be dispersed in self-contained groups under natural cover if possible. They should be sited close to existing roads and the latter should be made use of when circulating between these units. As these facilities are of the greatest importance, the problem of their proper dispersal and concealment should be well studied.



Chapter IX

FIELD CAMPS

901. Location of Camp Area

Housing for personnel will generally consist of tents or prefabricated huts which should be so located as to place operating personnel reasonably close to their units. Living quarters, except for that portion of the command on twenty-four-hour duty, should be a mile or more away from the operational area, provided there is a dependable ready means of going back and forth. As in the case of other facilities, personnel quarters should be so situated as to utilize the protective concealment provided by natural cover and they should be serviced by footpaths only. Messing, recreational, ship's service and certain supply facilities may be conveniently near the housing areas, but some distance from the repair shops and other operational activities.

It is of great importance to locate living quarters on high ground 1¼ miles away from, and to windward of, standing water, swamps or native villages. One mile is the minimum, with measurement taken from the outermost boundary of the area. It is desirable to have a field camp on a slope in order to reduce to a minimum the need for artificial drainage. Also it is advantageous to place housing near the water supply, to reduce the amount of pipe and pumping. It is better to pump and pipe water a long way, however, than to locate a camp in a swampy area. Latrines and other waste disposal facilities should be placed on the leeward side of the camp and remote from the water supply and messing facilities.

902. Dispersal of Personnel Facilities

The dispersal, or scattering, of the individual living units within a personnel area will afford valuable protection by minimizing the effectiveness of air attacks. Dispersal is the first step in camouflage, and in selecting the site for an advanced base the opportunity for the dispersal of all its features should be one of the governing factors. No hard and fast rule can be set for the distance by which various living units should be separated. The amount of space available is the deciding factor in the spacing of units. A proper orientation or alignment of various structures with respect to each other is most important. Their relative arrangement should be haphazard or scattered rather than geometrical. Any semblance to a regular pattern is much more easily distinguished from a distance than is a strewn or scattered disposition.

903. Sanitation

Sanitation is the direct responsibility of the Commanding Officer, advised by the Medical Officer, but the actual work is performed by Construction Battalion personnel, when these units are present. Otherwise the Commanding Officer must supply necessary labor from other sources. In this connection an officer should be assigned the duty of "Water Supply and Sanitary Engineering." This officer can also serve as the camp Maintenance Officer.

Sanitation includes the proper disposal of all waste products of a camp or base. Disposal of human wastes should receive immediate attention to avoid fly-borne diseases. Initial installations for large camps and semipermanent installations for small camps are best afforded by the pit latrine. Care should be exercised that these are made fly tight and DDT or other available insecticides used to prevent fly breeding. Flush type facilities can be installed at a later date for semipermanent camps, using waste water from showers and lavatories where the water supply is limited. At more permanent bases with adequate water supply a sewer system should be installed.

Proper disposal of garbage is likewise an immediate necessity to avoid fly breeding with consequent hazard of disease dissemination. Incineration, dumping at

sea, burial and land fill are approved methods, depending upon size of camp and local conditions. Incineration is an advantageous method of disposal of garbage, except in forward areas where fire or smoke may endanger the security of the camp. Various types of incinerators can be improvised and one of a more permanent nature is shown on BuDocks Drawing 303,773. If disposal at sea is adopted, local tidal flow and current conditions must be taken into account to insure that the garbage does not accumulate in the nearby inlets or wash back upon the beach. The design for a pontoon garbage barge shown in *Construction Battalion Activities* (BuDocks), January 1, 1945, has proved satisfactory. For small camps burial is the most practical method. This involves excavation of pits for disposal of garbage. These pits can be filled to within one foot of the surface, and the balance then filled with earth after covering the garbage with waste oil or insecticide. For larger camps the land-fill method is more practical than burial. This method involves dumping on low ground and utilizing mechanical equipment such as a power shovel or a bulldozer to provide earth cover over the garbage.

With reference to both human waste and garbage it is important that all facilities be rigidly inspected by the cognizant officer and that proper sanitary discipline be enforced.

A common mess should not be placed in operation unless adequate facilities are available for cleaning and sterilizing mess gear. The most practical way is to dip the mess gear in boiling water just before each meal. After usage is must be washed in hot (160°F) soapy water and disinfected by steam, boiling water, or with chlorine, and it should be air dried. If chlorine is used, the concentration of chlorine should not drop below 50 ppm. Individual mess gear should be replaced by standard stainless steel trays as soon as possible. Galleys and mess halls should not be placed in operation until they have been screened.

904. Mosquito and Malaria Control

Malaria control consists essentially in destroying the breeding places of mosquitoes, protecting personnel against mosquito bites and taking suppressive treatment regularly. Such measures are ineffective unless personnel see the need for them. For this reason it is imperative that emphasis be laid on this subject at all times. It has been definitely proved that such measures are effective and that when they are not taken the result is the loss of many man hours, possible death and general depletion in efficiency of personnel. This can assume disastrous proportions.

The health of a command, like sanitation, is the responsibility of the Commanding Officer. He should therefore take continual personal interest in this matter to make sure that his organization is fully prepared and trained in this respect before it leaves the United States. When going into a malarial zone, adequate mosquito protection and malarial suppressive measures should be instituted immediately on landing. The incubation period of malaria is from fourteen to twenty-one days, and if preventive measures are not instituted until malaria breaks out it is quite likely that as high as seventy-five per cent of the personnel will be incapacitated.

Even if your unit is ordered from the United States to a location free from malaria, do not neglect antimalarial training and equipment. Your unit may be diverted en route to a malarial zone. Remember,

"The camp must be located at least a mile away from a native village."

De luxe shower unit.

malarial losses are higher and on the average more permanent than losses due to enemy bullets. Our wounded men are frequently back on active duty in a few weeks. Men with malaria are lost for months. This is another cogent reason for keeping advanced base personnel to the minimum necessary to accomplish the mission. Excess men not only require more ships to feed and maintain them but constitute extra mosquito targets.

The experience of the British in the last war and of the Allied Forces in this war has shown that in areas where malaria and other diseases carried by insects or directly related to sanitation are important factors, their control is effective only if supervised by specially trained personnel. Accordingly there have been formed Malaria Control Components [Epidemiology] (G17), Epidemiology Components (G18), and Malaria and Epidemic Control Components (G19). These components are distributed throughout the Pacific and consist of personnel specially trained by the Bureau of Medicine and Surgery for the purpose of supervising the disease control work done by the Construction Battalion, native laborers and others engaged in this important phase of military operations. Although the battalion may have assignments having a high priority, such as airfields, roads and docks, maintenance of proper sanitary conditions should be given top priority. This will actually hasten the other high priority projects through the saving in days of duty of men who would otherwise be incapacitated by the ravages of malaria, dysentery, dengue, scrub-typhus and other diseases of epidemic type.

The problem of mosquito control cannot be overemphasized in tropical areas where malaria and dengue are prevalent. From the standpoint of the civil engineer the problem has many features. Water sources where mosquitoes may breed must be eliminated to the maximum extent possible. In most cases, this may be accomplished through drainage. All areas that cannot be effectively drained for engineering reasons must be sprayed with oil or other larvicides to prevent breeding. All structures for the housing and use of personnel should be effectively screened. In construction such as roads and walks, care must be taken to see that culverts are so placed that no water will be impounded and that natural drainage will not be blocked.

Before the construction personnel have finished their work of providing adequate protective facilities the major reliance against mosquitoes must rest on individual precautions. For this reason it is important that head nets, bed nets and protective clothing, insect repellents and sprays be so loaded aboard ship

as to be immediately available. All personnel must be indoctrinated in the proper and unfailing use of these aids to health.

905. Water Supply Manuals for Advanced Bases

Water Supply Equipment Available to Advance Base Units is covered by a BuDocks manual carrying this title, with revisions to January 1, 1945. War Department Manuals TM 5–295 *Water Supply and Water Purification, 1942,* TM 5–296 *Ground Water Supply for Military Operations* and TM 5–297 *Well Drilling* are valuable references in connection with water supply.

906. Types of Water Treatment

There are three general sources for advanced base water supplies—surface water, ground water and sea water. These sources usually yield water of three general types: (a) water of relatively high turbidity, which in many cases contains bacterial and amoebic contamination; (b) clear water relatively free of contamination; and (c) salt or brackish water. Surface water is usually classified under type (a) but in exceptional cases may be clear and free of contamination. Ground water is usually classified under type (b) but in some cases, because of geological conditions or poor construction of wells, may be turbid and contaminated. In some locations fresh water may not be available in the desired quantity and sea water or brackish ground water will have to be used for part or all of the water supply. Water treatment equipment furnished to advanced bases is classified as purification, hypochlorination and distillation equipment, and was designed to produce a safe supply from whichever of the three general types of water is available.

Purification.—This treatment consists of coagulation and sedimentation, filtration and chlorination. It is intended for use in treating water which is turbid and/or contaminated. If the water is relatively clear and free of amoebic contamination, coagulation and sedimentation may not be necessary. The chlorination unit alone may be used in treating clear water that contains no amoebic contamination. The coagulation and sedimentation unit is used to remove most of the turbidity load and some of the disease-producing organisms; the filter is a polishing unit, which removes the remainder of the turbidity and more of the disease-producing organisms; and chlorination destroys the remaining bacterial contamination. In the past, tanks for use as a separate intermediate coagulation and sedimentation unit were not furnished. It has been found that a separate intermediate treatment using flocculation with alum and soda ash is necessary

Erection of 16′ x 16′ tent.

and should always be used for treating highly turbid water or water containing amoebic contamination. The filtration equipment originally provided was of the sand filter type. With the portable units, which use a pressure filter with rates of filtration up to 6 gal/sq ft/min, coagulation and sedimentation should always be used where danger from amoebic contamination is indicated. Gravity type sand filters with rates of 2 gal/sq ft/min are used in the large semiportable equipment and produce a much higher quality of treated water. Recently a portable diatomite filter unit has been developed, which produces a high quality of water with positive protection from amoebic contamination. The chlorination equipment is of the positive feed type, which applies a calcium hypochlorite solution to disinfect the water prior to consumption. This final treatment destroys all disease-producing organisms except amoebic cysts and shistosome cercariae (blood flukes). These must be removed by coagulation and settling followed by filtration.

Hypochlorination.—This process consists of disinfecting water with chlorine to destroy disease-producing organisms. Since no filtration or settling is involved, this treatment is not suitable for waters of high turbidity. Two types of treatment are included under this process, i. e., emergency treatment for use in canteens and Lyster bags, and automatic hypochlorination treatment for use in large continuous water supplies. For emergency treatment the water is first superchlorinated and after a required contact period is then dechlorinated. This method of superchlorination-dechlorination is a new development effective in destroying amoebic cysts and similar organisms that are not destroyed by the usual chlorination treatment. It must be remembered that after this treatment the water may be recontaminated since no residual chlorine is maintained. However, in small quantities with definite control there is little probability of recontamination. Automatic hypochlorination should be used where the contamination can be removed by treating the water with a calcium hypochlorite solution to produce a residual chlorine content of not over one part per million; it should not be used where amoebic contamination is indicated. This is an effective method of treating large quantities of clear water from surface or ground sources. Since it uses less critical material and shipping space than the other types of gear, it should be employed whenever conditions warrant. However, before requisitioning this equipment, the Medical Officer should determine whether it will give adequate treatment.

Distillation.—This treatment is necessary where a sufficient quantity of fresh water is not available. It should not be used when purification or hypochlorination equipment is practical because distillation equipment involves considerably more critical material and shipping space per gallon of water produced. More fuel is consumed and more man power will also be required for maintenance and operation. Recent developments in a vapor-compression type distillation

Advanced base type wood stave water tank.

Surabachi Volcano at south tip of Iwo Jima.

Torpedo overhaul shop at an advanced base.

The chaplain's jeep.

unit have resulted in far more efficient equipment than the old two- and three-stage units. Fuel-to-water ratios have been increased from 1:20 to 1:150 by these new type units and the quality of the distillate has been improved by reducing the possibility of carry-over of salt. This new equipment produces the safest water of the three treatments, but distillation should be followed by chlorination of some type where the water may be subjected to contamination.

907. Location of Hospitals, Dispensaries and First-Aid Stations

The location of these facilities is a matter that should be decided by joint action between the Officer in Charge of Construction and the Senior Medical Officer. In general the same principles of dispersion, concealment and defilade apply to hospitals as to other building groups. Insofar as military requirements and topography permit, the following points should be given all possible consideration in selecting the site for any advanced base hospital:

(*a*) The site should be well removed from strategic base installations that may become targets for enemy bombing.

(*b*) It should be within easy reach by all-weather roads from the docks and the transport airfield, so that rapid transfer of patients may be carried out in an easy manner.

(*c*) There should be ample water supply.

(*d*) It should be located in an area removed from the noise and dust of the operational area, and in a position that will derive the greatest benefits from prevailing breezes if in the tropics.

(*e*) The site should be well drained, ample for expansion, and well away from swamp water or other mosquito-breeding areas.

Normally the dispensary should be located close to the living quarters, for this facility cares for minor ailments of the personnel rather than major illness. At large bases a number of first aid stations may be necessary near the operational areas.

Sick bays and hospitals require air-raid shelters to which both stretcher and ambulant cases can be taken in case of air raids. Where mosquitoes are a factor these air-raid shelters should be securely screened and prepared to care for patients overnight. Extra gas masks should be provided for all dispensaries and hospitals in the theaters of operation on the basis of one per bed of total bed capacity. One per cent of these masks should be of the head-injury type.

908. Ten Commandments for Acorn Activities Ashore

ACORN TRAINING DETACHMENT
AMPHIBIOUS FORCE
PACIFIC FLEET
Port Hueneme, California

I. Thou shalt not drink water from any source other than that designated, else thou becomest victim to fate more potent and virulent than Japanese lead. Thou shalt use thy water sparingly and wisely or thy days and thy brother's may be numbered.

II. Thou shalt not use any spots except chosen ones for the deposition of thine excreta. Thou shalt use only these chosen areas from the moment thou comest ashore, even though it entails walking farther than appears necessary at the moment. The grounds of the camp shall be sacred and if used promiscuously as a nocturnal head, it shall surely result in the implantation of potentially a veritable savage army of germs which will despoil the entire camp of its health. If the chosen area is a "straddle" trench, thou shalt, after depositing thy waste, completely cover same immediately with the dirt provided at the trench's end. Thou shalt not urinate on thy brother's tent or street else he regard thee as a dog which thou has thereby imitated and treat thee accordingly.

III. Thou shalt take without grumbling the medicine issued for malaria or placed in water for purification. For verily, if thou dost not take these precautions thou shalt descend to the depths of disease and despair as negligent brethren have proven before thee.

IV. Thou shalt faithfully and carefully wash thy mess gear in the cans provided, even though the smoke and heat be thick and heavy about the fire, for surely, if thou desist and become negligent in this habit, thy bowels will become as liquid and thy guts as knots in a wet rope.

V. Thou shalt maintain only friendly and discreet attitudes toward natives, lest they transmit to you a brand of such heat and violence, thy days of virility and youth will be quickly passed.

VI. Thou shalt eat only of the rations provided or inspected and found fit. A delicious vegetable unplucked in a rich native field may harbor an enemy more treacherous than even a Jap warlord.

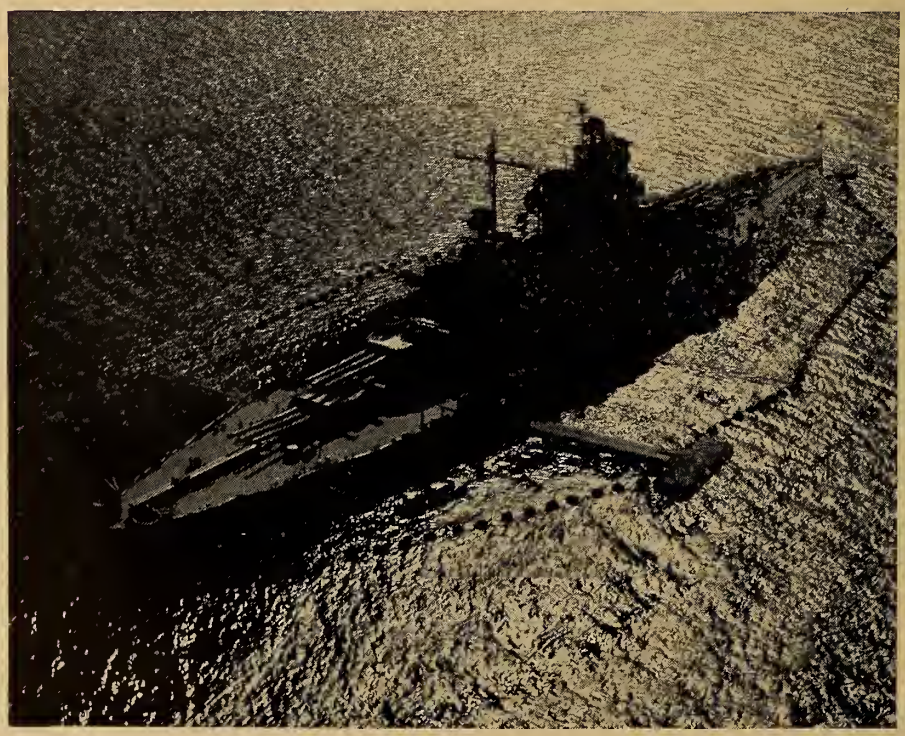
VII. Thou shalt judiciously use thy mosquito netting each and every night, if indicated; treating it as a trusty armor against a vile disease. Thou shalt carefully tuck it in around thine entire cot; keep it carefully mended and preserved else thy days of chills and fever shall surpass thy days of good health.

VIII. Thou shalt make thyself skilled in the art of administering first aid. Thy reward will be in the smile of an injured comrade thou hast saved to destroy a Jap.

IX. Thou shalt keep thy personal habits clean, for surely cleanliness is next to Godliness: filth is a brother of disease and death. Thou shalt not use thy neighbor's toilet articles for verily the interchange shall result in odious sentiment and often discomfort.

X. Thou shalt report promptly for medical attention to all minor and trivial injuries and ailments as well as the major ones. For surely does not a small spark frequently grow into a mighty holocaust?

AN Class net layer.



Individual ship protection net.

Chapter X

BASE AND HARBOR DEFENSE

1001. General

It is the responsibility of the Base Commander to defend the base and to promulgate standing operating procedures, utilizing all the forces available. The Navy forces involved are the Functional Components necessary to operate and defend the base and service Fleet units.

1002. Naval Local Defense Forces

In general, the Naval Local Defense Forces at advanced bases are charged with the defense of Naval installations and serve as a reserve to assist Army or Marine forces in repelling landing attacks. They should be organized to operate the elements of harbor defense, to man close-in automatic weapons within Naval reservations and to constitute a reserve beach defense force.

1003. Harbor Defense

The Navy elements of harbor defense consist of the following:

(*a*) *H.E.C.P.* — The Harbor Entrance Control Post is a joint command post for the coordination and joint operation of the Army and Navy elements of the harbor defense system.

(*b*) *Detection Units.*—The detection units of the harbor defense consist of loops and associated radar, sonobuoys, cable-connected hydrophones, heralds and other devices so situated as to give timely warning to the Base Commander of the approach of any unfriendly submarine or surface craft attempting to enter the harbor.

(*c*) *Nets and Booms.*—The net and boom units of the harbor defense consist of A/S, A/T and A/B nets so situated as to close the harbor effectively against submarine, torpedo or motor torpedo boat attack. Individual ship protection is also provided.

(*d*) *Mine Sweepers.*—Those vessels assigned to keep entrance or approach channels free from mines.

(*e*) *Patrol Vessels.*—Those vessels of the Naval Local Defense Force assigned to patrol the harbor entrance, nets and booms and inner harbor, and to take effective action against any unfriendly vessels attempting to enter.

(*f*) *Aircraft.*—Those aircraft assigned for the defense of harbors. They are equipped with depth charges and bombs and coordinate attacks with surface craft against enemy submarines.

(*g*) *Coastal Lookouts.*—Lookouts stationed so as to give timely warning of attempted landings at isolated positions.

1004. Base Defense Manual

Base Defense is covered in detail in the *Base Defense Manual* now being revised by the Office of the Chief of Naval Operations (Op–30).

1005. Dispersal.

The question of dispersal as related to base layout has already been discussed in other sections of this Manual. From the standpoint of defense, it may be said that dispersal or scattering of all facilities affords maximum protection from air attack by minimizing the amount of damage which may be done by a single bomb.

In the final selection of a site and the planning of its dispersed development, the following factors should be taken into account:

(*a*) Physical problems of construction.

(*b*) Maximum and minimum distances for scattered dispersal of all facilities, bearing in mind efficient tactical operation.

(*c*) Available materials on hand or in transit.

(*d*) Existing ground conditions and facilities.

(*e*) Character of natural cover or other protective features at hand.

(*f*) Relationship of site to other bases.

Standard advanced base magazine covered with earth and vegetation, which provide camouflage and some heat insulation.

Where more than one operational unit is contemplated for a given area, dispersal will again play an important role. If possible, operational units should be at least three miles apart. The principles of dispersal applied in this way, and at the same time adhered to in scattering the constituent parts of each operational unit, will withhold knowledge of the overall importance of the base and also will afford a measure of concealment for individual activities. Vulnerability to attack will thus be greatly reduced; and the danger of the whole base being knocked out by one raid, practically eliminated.

In a well-planned layout, the principle of dispersal and natural cover concealment should be applied to the siting of all units. Topographic, soil and meteorological conditions usually dictate the siting of the main operational activities, and minor units must be located with reference to them. Dispersal of buildings should be selective, with due regard to functional requirements, rather than general or indiscriminate.

1006. Protective Construction

Sandbagging and other forms of protective construction are discussed in *Navy Passive Defense Handbook No. 4.* In general, this form of construction is used only on vital installations. At advanced bases concrete is not widely used for protective construction, as the time necessary for building concrete splinter-proof structures is relatively long.

The communications center is normally the most vital single structure at an advanced base and should be well protected. Powerhouses likewise are vital and should in general be protected from splinters. Fuel tanks also are sandbagged if possible. No advanced base structures are built to withstand the direct hit of a large bomb.

1007. Protective Concealment

Camouflage is a subject on which a great deal has been written. The War Department series of publications, FM–5–20 and FM–5–20A through H, and the

BuDocks handbook *Location, Design and Construction of Advanced Bases,* are pertinent.

Complete concealment of an advanced base from an alert enemy is usually impossible, but good camouflage and concealment of vital facilities and the disposition of defense armament for protection will reduce the effectiveness of enemy reconnaissance and attack.

A location that will, by means of obscuration, minimize the likelihood of detection by the enemy is highly desirable. Wherever practicable, conspicuous landmarks such as a bend in the river, a promontory, a railroad crossing, road intersection or mouth of a stream should be avoided unless the pattern of the site layout is intended to simulate or fit into one or another of these features.

The ideal terrain from the standpoint of camouflage is one that contains a variety of texture and coloring. In an area that includes woods, brush, grasslands and fields of various crops, the most effective concealment can be accomplished.

Large wooded areas afford excellent opportunities for concealment from enemy observation, but small patches of woods draw enemy fire. A site near large areas of trees and vegetation in which supplies and equipment may be stored and hidden from view will minimize hazards and the extent of camouflage required.

In addition to the protection afforded by natural cover and topographic conditions, camouflage in the form of netting and paint may be of considerable help in concealing vital installations. Runways and landing ramps on a beach may be excellently disguised. Also where appropriate, decoy airplanes and guns may be constructed from scrap materials on hand. Instructions are contained in BuDocks pamphlet *Construction of Decoy Airplanes and Guns,* October 1943. It is important to observe and photograph the advanced base from the air before and during camouflage operations to determine the effectiveness of the methods being used.

1008. Smoke Screens

A correctly executed smoke screen has been found most effective for the protection of anchored shipping and surrounding shore installations against dawn, dusk and night air attack. Because of the difficulty in coordinating with fighter plane interception and visually controlled antiaircraft fire, the daytime use of smoke is usually limited to advanced areas where these defensive measures are not sufficiently developed to provide adequate protection. It is considered that the use of smoke will become of increasing importance as distances to enemy bases are further reduced.

1009. Antiaircraft Defense

Antiaircraft defense will normally be a function of the Army or Marine Corps. Full cooperation will, of course, be afforded by Naval Units, which will be especially active in the construction of gun emplacements.

1010. Some Comments from the Field

The following comments on base defense are extracted from material written by an advanced base Commanding Officer who had considerable experience in operating with Naval, Marine and Army units.

Radar

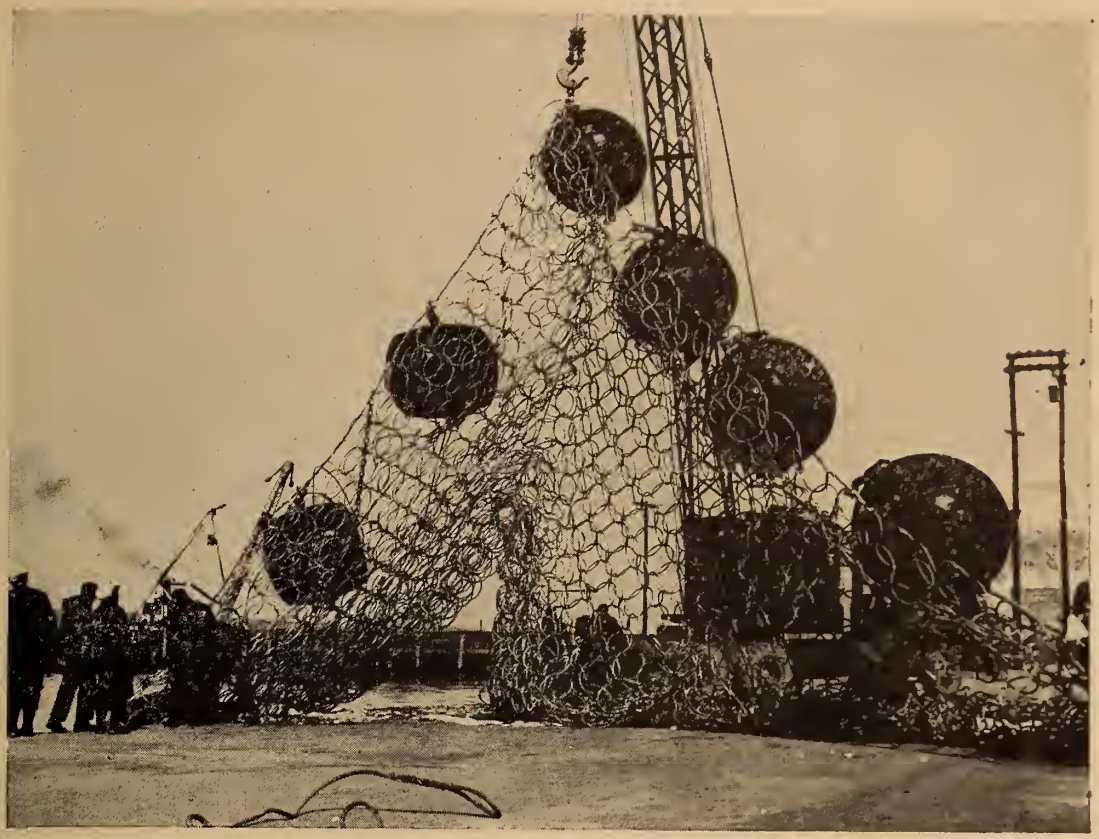
Radar installations must be set up as early as possible. Radar for planes must be in direct contact by telephone with Fighter Control so that fighters can be put in the air as early as possible. Since radars quite often cover only certain sectors, a radar net, Fighter Director System and Combat Information Center are desirable. Various shore batteries and field batteries of the Army and Marines also are provided with surface radar. Every possible effort should be made to acquaint all units with full information of the location and hours of arrival of friendly ships. However, due to slow communications and changes in plan because of enemy movements, proper information often does not reach Battery Commanders. If these radars are connected in a radar net with Combat Operations and Intelligence Centers many of the difficulties encountered would be eliminated. The exact arrangement of the radar net will depend on local conditions.

Air-Raid Warning Signals

Normally with radar coverage ample information should be available of approaching enemy planes and the time of arrival can be fairly closely calculated. When many air raids are expected, it is highly essential that the "Condition Red" be set not over 10 minutes before the planes are due overhead. Initially at our base "Condition Yellow" was set when enemy plans were discovered approaching. Personnel immediately sought shelter and many hours were lost, awaiting the raid. Many times the enemy planes turned off before getting close to the base. "Condition Yellow" was then abandoned. This required a rapid system of communication for setting "Condition Red." Often too, at night, enemy planes followed our planes into the landing and were not picked up. At other times enemy planes flying in low over the mountains were able to approach undetected until close. This condition makes necessary an Air Raid Siren System so that all

A torpedo is stopped by torpedo net.

Light motor boat boom with star cutters.



A panel of torpedo net.

units can be immediately informed when "Condition Red" exists. Paralleling this system should be a direct telephone line from the Combat Intelligence Center or the unit that sets "Condition Red" at least to the three main switchboards of the three services, who can then call all units on their board.

Radio facilities will be increased rapidly at any base and material upkeep is important. Plentiful repair equipment and material is necessary not only for base radio, but for aviation radio and for salvage work on radio in destroyed planes.

Passive Defense

The elements of passive defense have been thoroughly covered by many pamphlets and articles. At an advanced base, however, particularly during the initial stages, equipment for defense may be lacking and men untrained. The greatest protection possible is through indoctrination of all personnel in protective measures and the maintenance of calmness.

The outstanding lesson of our base from the viewpoint of passive defense is the relatively little damage done to personnel and equipment by shelling and bombing. Direct hits are fatal and no protection can be expected, but in an area even as limited as ours during the initial stages, the proportion of direct hits was small indeed. Most personnel casualties (with the exception of direct hits) occurred through personnel not taking advantage of cover or attempting to run from a spot they thought dangerous.

The arc at which bomb splinters normally fly is well known. The 100-pound personnel bombs used by the Japanese appeared to have a much flatter splinter path. (Hence locally called "daisy cutters.") Splinters from shells explode upwards at an angle of about fifteen degrees. If the body is kept below the surface of the ground splinter damage should be small. Shells used by Japanese were contact-fused and exploded on hitting trees. Bombs also are reported to explode on contact among trees though we saw no evidence to support this. If among trees, therefore, surface cover over foxholes is necessary.

Given a sufficiency of foxholes and a signal system for advance warning to take cover, personnel injuries from fragments should be reduced to a minimum, provided men remain calm.

Foxholes should be dug immediately if possible, near each tent in camp so as to afford protection for men at

night. This is particularly important protection against naval bombardment. Additional foxholes must be dug at convenient locations throughout the camp, particularly near areas where men collect, and in excess numbers for additional personnel who may be around. Frequently air attacks occurred during meal hours, and in particular, unexpected dive bombers appeared for dinner. A sufficiency of foxholes permitted all hands to take cover in a calm and leisurely manner.

Foxholes also should be available in the vicinity of unloading beaches, radio stations or wherever men are assigned. Warnings of some raids may allow time to permit men to proceed to other areas where foxholes are available, but too long advance information of a coming raid causes undue loss of working hours and is upsetting to morale.

Sick bay and hospitals require special foxholes in which stretcher cases can be taken during raids. Whenever advance notice of a regular run of the Tokyo Express was given, stretcher cases at the Navy camp were placed in special foxholes early in the morning to avoid being caught without warning.

Proper systems of warning are essential. Air Raid Siren Systems that cover the entire area are probably the quickest and most reliable means of warning. Several night bombings occurring without warning caused casualties that could have been avoided had even a few moments been available to take shelter in a depression. Direct telephone communication from the Air Raid Center or Combat Intelligence Center to several main boards where the word can be simultaneously passed to many units is also useful, particularly in the case of naval surface ship attack. A mouth-whistle signal was adopted in the Navy camp which became standard in many other camps. One whistle by the duty officer signaled "take cover" and three whistles signaled "all clear." This alert was used for shelling as well as air raids. Red signal flags were always hoisted during "Condition Red." It is remarkable how sensitive the ears become to such whistles or to enemy planes even during soundest sleep. Warning for naval bombardment was automatically given (a) when an enemy plane dropped flares overhead, (b) when enemy ships turned searchlights on the beach and (c) when sound of surf indicated high-speed vessels passing. Suitable radar-net installations with proper telephone connections should give sufficient warning of naval bombardment.

Tin hats should always be worn when taking cover. Many instances occurred when the hats absorbed the blow of a splinter and also when absence of a hat resulted in death. A reasonable number of spare hats should be kept available. The use of gas at an advanced base is problematical. It must be kept in mind though that if gas is to be used by the enemy, an island base that he wishes to neutralize but not necessarily occupy himself is exceptionally vulnerable to gas attack. Gas masks should always be at hand when large naval or air formations of the enemy appear.

Wherever possible buildings should be sandbagged and equipment given splinter protection. On airfields where fighter planes require fueling immediately upon landing even though enemy bombers are overhead, it is the practice to have gas trucks full of gasoline parked in the woods near the field. Personnel manning the trucks stand by in a special foxhole, which is provided with telephone connections to Fighter Operations.

Shipping should invariably get under way and maneuver during raids. Attacks on bases will probably depend on the type of base and the enemy's intentions. Where the base is primarily a Naval Base, attacks will most often be against shipping, docks, storehouses and other such facilities. At our base shipping was at times attacked by dive bombers, horizontal bombers and torpedo planes. These attacks were not repeatedly made, however.

If the base as an offensive weapon consists mostly of an airfield, then the airfield will receive special attention. The Japanese are very methodical. Our field was attacked repeatedly. The first raids were on the field itself, then methodical bombing of the outskirts of the field, first hangars (ex-Japanese) then each side in succession to locate dumps. Naval bombardment was primarily devoted to the airfield. Later several bombing raids raked the beach line.

Woods as cover should be used to the greatest possible extent to hide dumps and other vital installations. In the South Pacific, near the shore, coconut trees shed dry palm fronds which spread fire rapidly. In one raid the Cub camp was the target. This camp area also contained aviation gasoline, bombs and 90-mm. ammunition. The bomb explosion blew burning gas around which set fire to palm fronds and spread rapidly to several 90-mm. dumps and other gas dumps. Each explosion blew burning fronds further. Had it not been for these palm fronds (which also serve as breeding places for mosquitos) the damage done would have been negligible.

1011. Chemical Warfare Defense

The formulation of Chemical Warfare Defense measures requires a knowledge of the characteristics of gases that may be used by the enemy, the methods by which they may be applied, and the various procedures of individual and collective protection and decontamination. Gas masks and protective clothing are the basic protection items and personnel should be trained until their use becomes automatic.

Protective equipment consisting of one lightweight service gas mask M3 or M4–10A1–6, one pair of trousers, one jumper with hood, one pair of gloves, two pairs of socks, individual protective cover, shoe impregnite and four M–1 eyeshields are furnished to the personnel of all Advanced Bases including Alaska, except Panama, the Caribbean Sea Frontier,

South America and Newfoundland. In all cases the items of clothing are impregnated before shipment and no separate chemicals are furnished with them. However, for the maintenance of this protective clothing an M–1 Field Impregnating set is furnished for approximately each thirty-five outfits, for re-impregnation when necessary. A gas mask repair kit is supplied for the maintenance of each 300 masks. Impregnite test kits are included for each 100 outfits in order that all chemical defense clothing can be periodically tested to determine the protective quality remaining.

Established policy is to issue a sufficient number of individual protective covers made of cellophane or its equivalent to provide two covers with each gas mask. This cover as worn completely encloses the body and is furnished for emergency protection against liquid gas spray attack. The gas mask cloth carriers contain internal pockets for stowing these covers.

Several clothing impregnating plants and gas mask repair shops are in operation and additional ones are being established at major overseas bases.

Detailed information on the use and care of the aforementioned items may be found in the publication FTP–222, which is available from the Publication Section of the Office of the Chief of Naval Operations. Items for gas detection at shore bases and decontamination materials and equipment for shore base installations are under the cognizance of BuDocks and instructions relative thereto are issued by that Bureau.

Decontamination of terrain and buildings is under the cognizance of BuDocks which issues instructions relative thereto.

Treatment of casualties from chemical warfare agents is outlined in NavMed Manual 220 available from BuMed.

1012. Nets and Booms

There are several types of nets and booms in use at advanced bases. Their installation is usually handled by trained personnel on board net cargo ships (AKNs) and net layers (ANs). It requires careful planning and knowledge of such factors as depths of water, strength of current, exposure of defended area to direct torpedo fire, and type of bottom. The three basic types of net defense are listed below, together with the more important subtypes now in use.

(*a*) *Torpedo Net*

1. *T–8.* The simplified single torpedo net, 40-foot deep panels of standard 16-inch grommets, 1¼-inch continuous headrope, no jackstays, spherical floats, moorings having only one MK 2 buoy. The net hangs under floats and surface protection may be afforded by separate curtain nets. Much of this type net has been installed in the past and is now in use in forward areas. T–8 net is now being replaced by the 50-foot depth Type T–10, described below.
2. *T–9.* A double torpedo net, otherwise similar to the T–10, with 2 MK 2 buoys per stream mooring, etc., and heavier moorings than T–10.
3. *T–10.* A simplified single torpedo net, similar to Type T–8, except that it uses 50-foot panels, always draped over the spherical floats for surface protection, and contains jackstays, which will when possible be preassembled.
4. *LISP–2.* A very light torpedo net, of 12-inch grommets, made of 0.162-inch wire at top and 0.104-inch wire at bottom. Connected in 1000-foot lengths, this net was named on the assumption that it would be used for individual ship protection. Since then, it has actually been used in lines of successive baffles for assault stage rapid laying by the KEOKUK class AKN. To avoid confusion, however, its name remains LISP–2.

(*b*) *Submarine or Indicator Net*

(1) *LSI–2.* A 4-foot diagonal mesh net of ½-inch wire, used either with indicator flares as a successor to HI, or without flares as a light advanced base submarine net. Also used as a skirt net under standard torpedo nets. See below.

(2) *A–16.* Light submarine net, 4-inch mesh (LSI–2), hung beneath torpedo net for protection to the harbor bottom against midget submarines.

(*c*) *Motorboat Boom*

(1) Star cutters may be attached to the upper jackstay of any of the above defenses to rip the hulls of wooden motorboats attempting to hurdle them.

Net Layers (ANs) are designed especially for laying net that is fabricated and launched from the INDUS class net cargo vessel (AKN). They may also be used for maintaining the net, but in the event that they are not available a net-tending Pontoon Barge mounting either a crawler crane (BuDocks Drwg. No. 146,269) or a winch-operated A-Frame (BuDocks Drwg. No. 146,407) is a good substitute. There is also available a Pontoon Gate Vessel (BuDocks Drwg. No. 146,268) for use in operating gates in net defenses. A small Pontoon Net Tug (BuDocks Drwg. No. 146,269) or a winch-operated A-Frame able to open or close emergency gates and to tow replacement net sections.

Net-trained personnel with shore handling equipment and some of the above floating equipment are sent to advanced bases in the J12A or J12B net components for the purpose of maintaining net defenses. Once installed the maintenance of the nets is a constant problem. Net defenses must be vigilantly patrolled, but if skillfully planned and carefully maintained they are an effective protection against underwater attack by submarine, torpedo plane, and sneak craft.

1013. Fixed Underwater Detection

Underwater detection equipment consists of four types of gear used in various combinations according to local conditions. All of them are complicated electronic devices requiring specially trained personnel for installation, maintenance and operation. The planning of these installations requires a thorough understanding of the capabilities and limitations of the various devices and a knowledge of the local hydrographic conditions.

(*a*) *Sono-Radio Buoy.*—This consists of a radio transmitter and underwater microphone mounted in a standard barrel connected to a second barrel which contains the battery. It is purely a listening device. These units are anchored across the channel 1000 yards apart and monitored by a receiving station ashore. The device is also used as a supplementary line of detection, being placed 1000 yards inboard of the magnetic indicator loops for the purpose of localizing a loop crossing. It is most useful for advanced bases because it can be installed quickly and with simple equipment. However, it requires frequent maintenance and replacement of batteries.

(*b*) *Cable-Connected Hydrophones.*—Cable-connected hydrophones are tripod-mounted microphones planted on the bottom and connected to one multiconductor cable leading to the shore station. They are tactically equivalent to sono-radio buoys. They require little routine maintenance but for installation they require a cable ship or equivalent and a considerable length of time. Cable-connected hydrophones are recommended only as a permanent replacement for sono-radio buoys at well-established bases.

(*c*) *Magnetic Indicator Loop.*—This is a set of three cables laid on the bottom and connected to a sensitive fluxmeter-recorder ashore. It is operated by the magnetic field of the approaching ship. Under suitable conditions the loop is the most dependable and positive of all the devices, but its effectiveness depends to a marked degree on hydrographic conditions. In some cases it is possible to lay a modified sensitive loop for the detection of small craft. After sono-radio buoys the loop is the next easiest device to install.

(*d*) *Herald.*—This (Harbor Echo Ranging and Listening Device) is an adaptation of the ship-borne sound gear. It is tripod-mounted on the bottom and trained electrically by remote control through cables. Its effectiveness depends on depth, nature and topography of the bottom and on the temperature gradient. To install the Herald will require a cable-laying craft with a boom capable of a two-ton lift.

(*e*) *Coordination of Activities.*—The Fixed Underwater Detection and Radar systems detect craft entering the harbor. At the HECP all information is coordinated and patrol craft are directed accordingly. Communications from Detection Station to HECP to Patrol Vessel must be fast and reliable, and frequent communication drills should be conducted between these three activities. Close collaboration is essential, otherwise detection apparatus is of no value.

1014. Fire Prevention and Fire Protection

Most fires can be prevented by means of competent supervision, regular fire drills, and frequent thorough inspections to insure that causative hazards are properly safeguarded. Such fires as do occur may usually be extinguished in the incipient stage with little or no resulting damage provided that an adequate number of suitable type first-aid fire-extinguishing appliances have been installed; personnel have been instructed in their use; and alarm equipment or alternate arrangements have been provided to summon aid.

Once laid, net lines must be vigilantly maintained.

Pontoon gate vessel at net protected harbor entrance.

First-aid fire-extinguishing appliances usually consist of hand extinguishers of various types ordinarily containing (a) water for fires in ordinary combustible materials, (b) foam-producing ingredients or carbon tetrachloride for fires in oils and greases, and (c) carbon tetrachloride or carbon dioxide for electrical fires. The need for improvisation will undoubtedly be encountered. In such cases water casks and pails may be provided as a substitute for Class (a) extinguishers, and sand bins and shovels or pails for Class (b). For fires in electrical equipment, water may often be used *after the switches have been opened.*

Good housekeeping must be maintained, not only because certain discarded materials are subject to spontaneous ignition, but also because accumulations of rubbish are a most important contributory hazard. Congested storage without adequate aisleways between stacks is to be avoided at all times.

While fire protection is a highly specialized field, effective loss prevention work can be accomplished by inexperienced personnel if they are indoctrinated in a few fundamental principles. The pamphlet *Regulations for the Fire Protection of Advanced Bases,* August, 1944, issued by CNO (Op–30) is recommended for guidance in training personnel.

"Don't eat fruit or vegetables unless they have been cooked or unless you have peeled them yourself."—U. S. Army Pocket Guide to India.

Chapter XI

MINE WARFARE

1101. Minesweeping Operations Officer

A Minesweeping Operations Officer is normally assigned to each base from which it is anticipated minesweepers will operate. This officer is a graduate of the Naval Mine Warfare School and has had experience in minesweeping. He will be expected to prepare minesweeping operation orders, and will be responsible for all problems affecting the minesweepers and minesweeping personnel.

1102. Minesweeping Equipment Repair Component (E13, E14 or E15)

A Minesweeping Equipment Repair Component will be supplied to a locality in which minesweepers are operating if it is requested. These components will be trained and equipped for the express purpose of repairing minesweeping equipment. Each component will be provided with trained specialists and spare parts and equipment appropriate for the specific minesweepers assigned to the locality.

1103. Minesweeping Component (B8)

Emergency minesweeping equipment and trained personnel are furnished to advanced bases for use when regular minesweeping vessels are not available.

1104. Instruction Book for Minesweeping Equipment

Instructions for the use and care of the gear are forwarded under separate cover when shipment is made to a minesweeping or repair component. Publications so furnished are as follows:

Conf. Boston No. 46551.....to B8, E13, E14, E15
Instructions for A Mark 4 (r)
Gear .....to B8, E13, E14, E15
BuShips No. 571071.....to E13, E14, E15
Ships — 6 .....to E13, E14, E15
NavShips — 250–00–3 .....to E13, E14, E15
NavShips — 250–603 .....to E13, E14, E15

The above publications supplement the regular minesweeping manual FTP–204A, a copy of which is on the allowance for each minesweeping component and repair component. The periodical, *Mine Warfare Notes,* is also forwarded to each component.

1105. Mine Detail and Mine Assembly Depot Components

The Mine Assembly Depot (J11A) is technically self-sustaining, and has sufficient trained personnel and equipment to assemble approximately fifty mines a day. Mine Assembly Depot Forward (J11D) is technically self-sustaining and has sufficient trained personnel and equipment to assemble approximately ten mines a day. It is contemplated that there will be a limited number of Mine Assembly Depots in each strategic area. The depots will be prepared to forward mines to mining activities in more advanced localities.

1106. Mine Disposal

The Mine Disposal Component (J4B) usually consists of one officer, one petty officer and special tools and equipment, including automotive equipment. The personnel of the component are volunteers and have taken their basic training in Mine Warfare at the Naval Mine Warfare School, Yorktown, Virginia. Specialized training has been provided at the Mine Disposal School, Washington, in Allied and enemy mines, torpedos, depth charges and miscellaneous underwater ordnance. In addition, the petty officer of the component is a qualified second-class diver and is normally so designated upon reporting to a command for duty. The officer has received training equivalent to that necessary to qualify for diver, second class.

The primary duties of Mine Disposal Components are: to render safe or otherwise dispose of underwater ordnance that constitutes a hazard to personnel, equipment or shipping; and to gather intelligence information on underwater ordnance.

Assembling mines at an advanced base.

1107. Bomb Disposal

A Bomb Disposal Component (J4A) consists of one officer and one man, both graduates of the Naval Bomb Disposal School, trained to recover or dispose of all types of Allied and enemy bombs, projectiles, rockets, grenades, booby traps, land mines and other unexploded ordnance which hinder or endanger our forces. Each component is supplied with a set of special tools, and automotive equipment. These are essential to disposal operations. To deal with suspected duds and time bombs with a minimum of risk to base personnel, all hands at a base should be indoctrinated in bomb reconnaissance and in evacuation distances for danger areas. It is also desirable to train crews composed of base personnel in the techniques of digging and timbering in order to assist the Bomb Disposal Component in recovering buried bombs. The training by the component of all base personnel in the recognition of unexploded ordnance and its hazards is important in order to minimize unnecessary accidents. The Bomb Disposal Component is further trained in the use of explosives and can perform base demolition duties. The Bomb Disposal Component in addition to its primary duty of disposing of unexploded land ordnance gathers intelligence on Allied and enemy explosive ordnance.

1108. Base Demolition

The Base Demolition Component (J4C) consists of demolition equipment such as explosives, blasting caps, safety fuse, firing cables and electric blasting machines. There are no assigned personnel. Both Bomb Disposal and Mine Disposal Components are trained in explosives and can carry out base demolition functions. The purpose of the Base Demolition Component is to provide the equipment necessary for such operations as blasting channels, clearing obstructions to construction, and blowing holes for foundations. Only trained personnel should use this demolition equipment.

DEGAUSSING

1109. Purpose and Service

The advanced base degaussing components comprise assemblies of personnel and equipment, the largest of which furnishes all essential degaussing attention to Naval and merchant vessels, enabling them to have the best degaussed conditions for protection in the area against magnetic mines. The most numerous services rendered are checking and calibrating ship's degaussing coil settings on an installed magnetic range, inspection and minor repair of shipboard degaussing systems, magnetic compass adjustment and degaussing compensation, self-deperming of minesweepers, self-flashing of submarines, and deperming vessels up to and including Liberty ships, when a minesweeper is available for power.

1110. Mobile Units

Service Squadrons of the Pacific fleets have mobile degaussing units. When available, these craft are useful for making preliminary hydrographic surveys and for the installation of ranges. They can provide degaussing services prior to the establishment of a shore-based functional component.

1111. Magnetic Ranges

A major all-purpose base would generally utilize two ranges for the checking and calibration of vessels: a shallow range for minesweepers, and a deep range for larger ships. Insofar as conditions permit, ranges are installed in main channels for the frequent checking of ships while inbound and outbound without scheduling or preliminary arrangement. Calibrations require repeated runs in both directions over the range, and provisions for advance scheduling of calibrations should therefore be made.

1112. Inspection

Degaussing installations on ships vary and are best maintained by having the trained personnel of the degaussing component inspect and test the systems when ships are in port for any purpose. This contact with the ship assures that its personnel are informed as to the proper operation of the degaussing gear.

1113. Repair

Minor degaussing repairs are usually performed at the time of inspection and testing. For major repairs

Mine assembly shop.

Typical stowage of uncrated mines.

Typical stowage of crated mines.

in operating areas, repair ships and some tenders are equipped to provide degaussing service, but extensive repair work is generally handled at rearward bases where adequate facilities exist.

1114. Magnetic Compass Adjustment

Normal magnetic compass adjustment, or assistance in adjustment, as well as compensation for the effects of degaussing, is provided by the personnel of any component.

1115. Self-Deperming of Minesweepers

This class of vessels requires a very precise degree of degaussing, with frequent deperming. The advanced base components are equipped and trained to accomplish this service. Power is furnished by the minesweeper's own generators. The mooring, which is provided with the component for holding the ship on an appropriate heading, must be installed in a sheltered area.

1116. Flash-D Treatment of Submarines

Submarines are normally not fitted with degaussing coils, but depend upon flashing for their magnetic condition. Degaussing components have the necessary equipment for this purpose. Power is furnished by the vessel's own batteries and generators.

1117. Deperming

While degaussing components are prepared to deperm larger craft, up to and including Liberty ships, by using one or more minesweepers for power, it is contemplated that all large vessels will generally be depermed in rearward areas.

"Hey, what country is this?"

"Yoohoo in there! Anybody home?"

Chapter XII

COMMUNICATIONS

1201. General

The Communications Department of an advanced base consists of an appropriate combination of Communication Functional Components together with similar organizations from other arms and services. Efficient communications are essential to the successful operation of a base.

Speed of installation and a smooth operating procedure are necessary, especially during the most critical period of a base, which is immediately after D-day. During this period, large quantities of important operational traffic, in addition to administrative traffic, are handled. In order to accomplish this, advance planning is essential.

1202. Personnel

The Base Communication Officer, who may be from any of the several services, is responsible for the installation and operation of all communication facilities. These include not only radio, but telephone, teletype, visual and post-office facilities. He is also generally responsible for coordination of radar and the Harbor Entrance Control Post communications. His duties roughly parallel those of the District Communications Officer in a Naval District. The Base Communication Officer is generally on the staff of the Commander Naval Base, who in turn is responsible to the Area and Theater Commanders.

A Radio Material Officer should be designated prior to D-day. Upon him falls the responsibility for all electronic installations and maintenance requirements of the area. He should have under him officers and men who are qualified in radio, radar and sonar. Their duties will apply to equipment aboard all types of ships and small craft, as well as the electronic equipment ashore.

At most bases, it is desirable to designate a Tele-

phone and Teletype Officer who is responsible for the installation and maintenance of all telephone and teletype facilities in the area. At many bases this officer has been an Army officer. In addition, officers will be designated in charge of visual stations and post-office facilities.

All the officers of advanced base communication components can profit greatly by studying the organization charts and reports of earlier advanced bases. Every effort should be made to assign officers and men to billets for which they are best qualified. All officers should become familiar with *Communication Instructions 1944* and current Communication Plans for the area concerned.

A typical advanced base communication organization is shown on page 26.

1203. Material

The first mobile communication units of an advanced base arrive at the beach as soon as it is reasonably secure. This may be a matter of hours, when little opposition is experienced, or several days in other cases. This unit should have all mobile equipment, such as Models MMB and PN trucks, and should establish communications with designated Commands and units within a few hours after landing. This unit is primarily for the purpose of giving the Task Force Commander his necessary communications. Tactical units, such as Air Warning Squadrons, JASCOs, Beach Master teams and so forth, will have their own communications. Upon the Communication Officer lies the responsibility for seeing that all these communication facilities are coordinated. This entails the establishment of land line communications as required and insuring that the location of various radio and radar units will not interfere with each other.

The mobile receiving and coding equipment should be located near the Command Headquarters and the transmitting equipment approximately half a mile away. The matters of reveting and camouflaging vary considerably with the location and the expected amount of enemy opposition.

At most bases the mobile equipment may be replaced at an early date by more permanent equipment installed in Quonset huts or wooden buildings. By the time these units are to be installed, complete and accurate reconnaissance of the entire area will have been completed and the best possible locations, with greater separation between transmitting and receiving sites, can be determined. It is extremely desirable to locate both transmitting and receiving facilities very near water so that the propagation of the most important circuits is over water. Other factors, such as distance of land line controls, living conditions, local radio interference, roads and housing facilities, should be considered. Dispersal is usually accomplished by having transmitters and receivers located in two or more buildings. These may be separated by only a few hundred feet if revetments are used. The control lines are one of the weakest links in the communication chain, due to frequent breakage by bombing and damage from local bulldozers, trucks and so on Rubber-covered cables laid in water have proven more reliable than similar cables laid along the beach. An alternate route for control cables should always be provided, backed up by radio control facilities at important bases. Especial care should be taken to see that receivers are located away from local interference such as machine shops, hospital units and so on.

Radio units, including visual stations, should have their own power supplies, preferably Diesel-engine-driven generators.

Good housing and messing are very important, and the ability to give men the best possible facilities will pay large dividends in an efficient crew and a small binnacle list.

Prior to landing, arrangement should be made with the Seabee units to provide the necessary manpower for the erection of buildings and antennae. Where the Army provides Signal Construction Companies, they can often be used to very good advantage.

Most equipment is now packed in moisture-proof packages and should not be unpacked until it is to be used. The only exception to this is when boxes have been damaged so that rain and moisture can get into the equipment. It is necesary to impress on all personnel that, under no circumstances, shall the packing lists attached to various boxes be removed until the boxes are unpacked. Equipment must be kept under tarpaulins raised off the ground at all times. In this connection, it is desirable to have qualified personnel "supercargo" all equipment from the time it leaves the United States until it arrives at its final destination. Even with utmost care, some equipment will get lost or pilfered. In order to combat this, men should be detailed to make contact with the Officers in Charge of other units, especially Dump Officers, to

NOB radio receiver station installation.

acquaint them with the markings on electronic material boxes, so they can identify and turn such boxes over to the communication personnel.

1204. The Communication Plan

The operation plan concerned will show the list of circuits and priority of installation required at the advanced base. The following is a typical list of circuits that the average advanced base will be called on to handle:

Radio Circuits

1. Task Force Commander Primary
2. Task Force Commander Secondary
3. Amphibious Operational Command
4. Air Base Operational Command
5. Air Operational Intelligence Circuit
6. Air Command Liaison
7. Harbor, VHF, HF, and MF
8. Primary Fox Intercept
9. Area Fox Intercept
10. Task Force Commanders Fox Intercept
11. Point to Point Circuits
12. Weather Intercept
13. Aircraft (Non-Combat Circuits)
14. Local Island Nets
15. Bams-Distress
16. PT Base Command

Air Operation Circuits

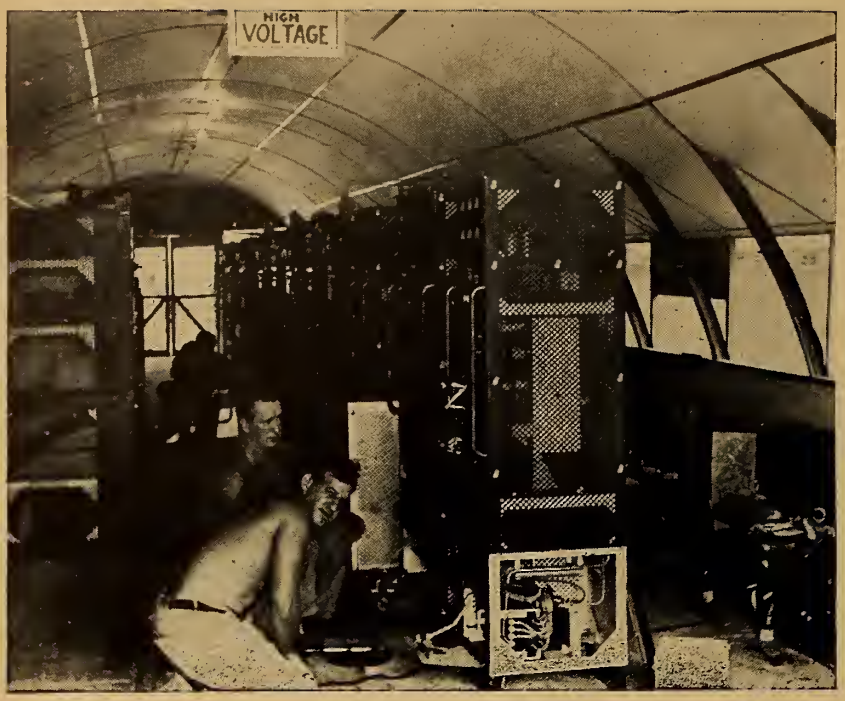
(Usually operated by Air Warning Squadrons and associated Aviation Functional Components)

1. Fighter Control—HF and VHF
2. Strike Command
3. Air Operational Voice
4. Radar Telling
5. Search Radar Reporting—(1 circuit for each 2 search radars)
6. Surface Radar Reporting
7. MRL or SRA Range
8. Air Homing—LF
9. YE/YG Homing
10. Racons

All officers should appreciate that at times it is necessary to make very rapid changes in operation plans which greatly affect communication. The Communication Officer should be in a position to know what these changes are so that maximum use can be made of equipment and personnel. Upon arrival at the last staging point, personal contact should be made with Army and Marine tactical communication units in order to provide the necessary cooperation and prevent the installation of duplicate facilities. Weekly conferences of all Communication Officers, including those afloat, can add materially to the efficient performance of duties by all communication units.

Four 75-kw. generators, with temporary shelter.

The first radio switchboard is set up at an advanced base.



Installing TBMs and TBAs in Quonset communications building.

1205. Registered Publications

Each base will have a Custodian of Registered Publications, responsible to the Communication Officer. This officer should be well trained, especially in regard to arranging his work into a fool-proof system. The number of publications this officer draws before leaving the United States should be the minimum. The time between leaving the United States and arrival at an advanced base is such that in the interim many publications will have been superseded. The Custodian must obtain all the required publications at the last staging point and make necessary arrangements to see that his file is kept complete and to determine his future source of supply. He supervises the work of the Publications Officer in the Port Director organization insofar as it is under his cognizance.

1206. Visual Stations

Visual signaling stations are always placed in operation immediately after the landing is made. At first, portable equipment is used, located adjacent to the Port Director, or near the Beach Master at isolated beaches. Later, signal towers are erected at optimum locations to give maximum view of ships in the area. Twelve-inch lights as well as portable lights are desirable; twenty-four-inch lights may be required at some locations to insure satisfactory circuits to ships near the horizon in daylight. At times, as many as ten lights may be needed on different levels of one tower. Each unit should have ample color filters available. Flag hoists are usually installed, although their use is limited.

The amount of visual traffic being handled when cargo ships are being unloaded is enormous. Careless handling of visual traffic cannot be tolerated.

1207. Security

The Communication Officer should be careful that the rules and regulations pertaining to communication security are complied with. In forward areas special security regulations are often prescribed by fleet or local commanders. In the urgency of handling traffic at advanced bases during the initial stages, compromises of cryptographic aids and violations of transmission security are likely to occur. It must be remembered that at advanced bases the enemy may be very close, often within the range of VHF radio.

1208. Postal Facilities

Functional Component C10 provides equipment and personnel for the operation of a Fleet Post Office and Navy Mail Center. Functional Component C18 furnishes like facilities for a V-Mail Station. These components form separate units under specially trained officers and where both are assigned to a base their equipment and personnel shall not be considered as interchangeable. The Officer in Charge of the Fleet Post Office and the Officer in Charge of the V-Mail Station shall report directly to the Communication Officer of the base and each component shall operate as a separate unit directly under that officer with necessary cooperation to afford efficient service.

The V-Mail Station should be located as close as practicable to an adequate fresh water supply. The Fleet Post Office should be located to facilitate transportation for the activities concerned.

1209. Conclusions

A successful communication unit is one in which all men are thoroughly indoctrinated in their duties. Everyone will always have plenty of work to do. It is essential that Naval communication personnel cooperate fully with Army, Marine and Air units. Advance planning is necessary even though plans change frequently. It is much easier to change plans than to start planning as you hit the beach.

"It feels like it might be a grain of sand."

PART II

ADVANCED BASE MAINTENANCE

Advanced Base Depot, U. S. Naval Base, Port Hueneme, California.

Pipe line from tanker mooring to advanced base tank farm.

Chapter XIII

GENERAL SUPPLY

1301. Maintaining the Base

An advanced base cannot exist without maintenance. Before the personnel have landed, maintenance problems begin. For a short period after landing, supplies are received on an automatic basis—usually for about ninety days. Thereafter, there is considerable variation in the proportion of total tonnage shipped to advanced bases, which is represented by maintenance. In some cases it may run as high as eighty per cent of the total. It is the purpose of the following chapters to give some idea of the administration of supply in the maintenance of advanced bases, once they have been established.

1302. Liaison with CNO

No matter how carefully plans may be made beforehand, each advanced base is essentially a pioneer project; the men at the advanced base, working under conditions of immediate fact, not only use the supplies, but also are in a position to know if the method of handling in every respect fits their particular needs. Therefore, advanced base personnel are invited to submit through channels to CNO concrete, objective and up-to-the-minute information on inadequate maintenance, in order that determination may be made of the most practical and effective means of correcting such inadequacies.

1303. What is Behind Base Maintenance

It must be understood that much more is involved in the insurance of an adequate supply of the necessary maintenance material at a base than the mere writing of a reguisition and drawing of material from the Supply Officer; and that wastage and carelessness in the handling of material at a base involve danger of scarcity of that or other material at that base or at some other. Each replacement part used at an advanced base to repair a ship, boat or plane, and each tool drawn from the Supply Officer at a base, already has a long history behind it. To the men attaching the part to an engine, or to the man drawing it from the Supply Officer, it may look easy for the storekeeper to put his hand into a bin and pick up the article in question, but in reality the presence of that article and others like it in the bin at an advanced base is the culmination of much work on the part of many people in widely scattered places.

1304. Estimating

The first step in procurement is estimating; that is, how many of every single item will the Navy need two years or so from now. These estimates are made on the basis of planning by the High Command expressed in terms of how many ships and planes of various types and bases of various kinds will be operating in designated areas at specific dates in the future, and what will be the extent and character of their operations. Once the quantities are estimated, they are ordered, and subsequently manufactured.

1305. Processing

After manufacture, the material is processed and assembled for overseas shipment; that is, treated, prepared, packaged and marked so that it will arrive in the forward area and be stored there in such shape as to be in perfect condition when it is to be used. The processing is in itself a complicated operation involving much work and care by many hands.

1306. Assembly

Finally, the material is assembled at seaboard, loaded into ships and sent out to the bases. This seems simple, but it is really an operation that requires the utmost cooperation and coordination. Everything must be timed so that the material can be transported on cars to arrive at the piers at the right time to be loaded directly into ships when the latter are ready.

1307. Publications and Manuals for Identification of Material

You should always bear in mind that supply activities back in the States and in rearward areas are guided by certain publications or manuals that were prepared expressly for the identification of material. Therefore, if equipment breaks down and it becomes necessary to requisition parts to repair it, use the manuals that the people in the supply activities have and will use to fill such requisitions. Supply activities are large organizations, and the established system must be followed in order to receive what is asked for. The following publications, in addition to the *Catalogue of Advanced Base Functional Components,* should be used for this purpose:

(*a*) *Advanced Base Initial Outfitting Lists (abridged)*, September, 1944, NavSandA Publication No. 28. A volume published every three months, containing abridged versions of the Initial Outfitting Lists for all active Functional Components.

(*b*) *Federal Standard Stock Catalogue.* This publication is designed to list in orderly and classified arrangement all supplies regularly procured, stored and issued by or for the various departments and establishments of the Government, and to furnish, in the case of each item of such supplies, the information necessary for procurement, storage and issue.

(*c*) *Stock List of Advance Base Materials—Equipment—Supplies.* A BuDocks publication issued to provide information to the field on the materials and equipment currently procured and normally had at Advance Base Depots and shipped by BuDocks to advanced bases. It is strongly recommended that bases confine their requests to items in the Stock List, as such requests usually can be filled immediately from stock.

(*d*) *Manufacturers' Spare Parts Catalogues.* Each manufacturer has his own spare parts catalogue which is furnished with the equipment. It is the only positive identification of a particular manufacturer's part according to the year or model. Its use will insure the receipt of the parts requested. Don't throw the parts book away when the equipment is received; it may be the only means available to identify a new part. Remember, models change, and each model has its own parts catalogue. Accuracy and completeness of information is dependent upon the use of the parts catalogue furnished with each piece of equipment.

1308. Relationship of the Base to Supply

There are a few general rules that should be followed upon arrival in the area in order to reduce maintenance problems. Many units that have been organized and trained as separate Functional Components will be present. These components will largely make up the base. It must be recognized that they are a part of the base and that their supplies and equipment are supplies and equipment of the base. Their existence as separate components should not be permitted to stand in the way of making the best use by the base of their supplies and equipment. Much of their supplies and equipment will have to be pooled for the common use of all facilities at the base. In order to accomplish this, it will be found desirable to dissolve many of the Functional Components and units and destroy their separate identity as such.

As soon as possible, advanced base personnel should learn the ropes in the area. They should know thoroughly the special area chain of command, and where the nearest supply depots, spare parts distribution centers, advanced base construction depots and other supply activities are located. They should also know what types of stock each suply activity in the area carries. In general, they will get better results if they know how the supply system in their area functions.

Chapter XIV

REPLENISHMENT SUPPLIES AND MATERIALS

1401. Supply Channels

In the forward areas definite supply channels have been established by the Area and Type Commanders. By means of various logistic directives, the Area Commander sets up the Basic Logistic Plan; the Type Commander is charged with the operational control of the plan and directs the procedures to be followed in the requisitioning of material.

The supply channels in an area may be determined by consulting the logistic directives of the Area and Type Commanders. It is essential that all activities in the field utilize these authorized supply channels, established to fulfill the objective of getting the goods to the requisitioning activity most expeditiously.

1402. Screening

"Screening" is a term used frequently in connection with the processing of requisitions. The term has been loosely applied in the past and now has many different connotations. As applied to requisitioning, it calls for a review of all requisitions to determine:

(*a*) technical suitability of requested material,

(*b*) possible excessive quantity,

(*c*) accuracy in preparation of requisition, and

(*d*) availability of requested material in relation to stocks of the material on hand in the area and the rate of receipt in the area of additional quantities.

1403. Stock Levels

Stock levels to be carried at a base are determined by the Area Commander. A level of supply prescribed for a base or area by higher authority is a fixed number of days of supply of the specified classes to be built up in a prescribed number of days after landing, and thereafter maintained at the base as a reserve for the protection of the supply status of the base in case of emergency. It is established by furnishing supplies over and above those required for current consumption at a base.

The stock level prescribed by the Area Commander will be made effective as soon after the landing of the initial elements as shipping availability, unloading facilities, and tactical situation permit. In every possible instance this level will be established from unused items on hand, initially provided for the landing forces, when such forces are withdrawn.

The Island or Base Commander will be responsible for the maintenance of the prescribed levels of supply, and for the timely submission of requisitions to insure that supply levels will not fall below the prescribed minima.

Perishable provisions will not be furnished until refrigeration has been installed. The level of supply for perishable items will be determined by the capacity of the available refrigerated storage.

1404. Forms of Requisition

The forms on which requisitions should be prepared and the information in general that should be included in them are listed in Chapter 9 of the *Bureau of Supplies and Accounts Manual.*

Requests for locally available material submitted by an advanced base activity to a local supply activity are usually made on a Stub Requisition (S. and A. Form 307). In the absence of directives to the contrary, it is recommended that stub requisitions be drawn up whenever it is possible to present them by hand. Requests on other than local supply activities, if not in-excess,[1] should preferably be made upon S. and A. Form 43. In-excess items should be requisitioned on S. and A. Form 44. While every effort should be made to use the correct forms, there will undoubtedly be occasions at recently established bases when they may not be available. In such cases, letter or dispatch requisitions are acceptable, and the same information that would appear on the proper requisition form should appear on the latter.

1) See paragraph 1406.

1405. Stub Requisitions

While stub requisitions are accepted in order to reduce paper work, the requisitioning activity should not use that fact as an excuse to eliminate the keeping of proper records. The stub requisitions should be serially numbered, and a copy should be retained in order to record what material was not received and what material was not in stock and should be followed up at a later date.

The stub requisition should be made out with care and should supply all necessary information legibly. A stub requisition should contain at least the following data: date, serial number, name of supply activity, name of requisitioning activity (with accounting number, if any), reference number of material, correct nomenclature of material, number or amount desired, unit of issue, and signature and title of officer authorized to sign requisitions. Any additional information that might in any way assist the supply activity either in securing or in identifyng the material should also be appended.

1406. In-Excess Requisitions

In-excess requisitions for advanced bases are defined as requisitions for material:

(*a*) which does not appear on the initial outfitting list of any of the components that constitute the base, or any program previously approved by the Chief of Naval Operations, or

(*b*) when the quantity of the items ordered plus the quantity on hand exceeds the total appearing on the combined initial outfitting lists of the various components comprising the base.

Requisitions for in-excess material originated by an advanced base unit that has not left the United States will not normally be approved, because the composition of the unit as requested by the Area Commander is presumed to include all equipment and material necessary for the unit to perform its mission. If special circumstances warrant the submission by such a unit of an in-excess request for material, the Commanding Officer will forward the request to CNO via the Area Commander of the area for which the unit is destined. The request will accurately describe the underlying circumstances and will clearly indicate:

(*a*) Special conditions applying to the particular unit, but not necessarily applying to similar units proceeding to other localities.

(*b*) Conditions applying equally to all similar units.

After an advanced base unit has reached its destination, in-excess requisitions and requests for material shall no longer be referred to CNO. The approval of the Area Commander will be considered sufficient authority for issue insofar as CNO is concerned, except that any in-excess requisition or group of requisitions approximating a Functional Component shall be referred to CNO. The Area Commander will forward a copy of each approved in-excess requisition to the cognizant material Bureau, so that the Bureau can estimate accurately the procurement necessary for the adequate maintenance of advanced bases.

1407. Identification of Material Requested

The necessity for accurately describing materials on requisitions has been repeatedly broadcast to the service. In spite of these efforts, continental supply activities continue to receive many requisitions that lack sufficient identification. The resulting confusion is clearly illustrated by two pertinent paragraphs of BuShips Res.ltr. L8–2(874–845) 4 July 1944, which are quoted here:

> If the request for each item contained all the identifying information available to a Commanding Officer, the chance of immediate identification and supply at the first supply activity would be substantially increased. If not available there, the chances of other supply activities recognizing and supplying the item would also be better.
>
> Of the 3000 requisitions which come to this Bureau per month, approximately sixty per cent are sent here only because no intervening activity could supply the necessary identification, or because the source of procurement is not known to the local supply activities. Approximately five per cent are sent here because they are labeled "in-excess" where, in fact, the material is within the ship's allowance and could have been supplied at the outset. Approximately ten per cent reach the Bureau because the first supply activity could not identify the material and did not realize that another supply activity could furnish the data or the material without reference to the Bureau. Approximately five per cent of requisitions marked "not in-excess" are, in reality, in excess of the ship's allowance.

From the foregoing it is obvious that seventy-five per cent of the requisitions received in BuShips for action *need not be sent there at all.* It is equally obvious that the extra work and time consumed in handling these requisitions in this one Bureau retard the flow of *all* requisitioned BuShips material, and

The CT–9 tractor crane has acquired the name of "cherry picker." Here one loads Mark 2 bomb trailers towed by a bomb service truck.

delay procurement of items that may be urgently required.

1408. Information Required for Identification

Reference numbers and correct nomenclature for consumable items may be found listed in the various publications cited in Paragraph 1307 of this Manual. If Initial Outfitting Lists or commercial catalogs are utilized, these sources must be specified.

Whenever available and applicable (particularly in the case of BuShips spares and other material primarily technical in nature) the following additional information should be included:

(*a*) Type of activity for which material is required.

(*b*) Urgency with which requisitioned material is needed, using the following designations where applicable:

(1) *Emergency*: to be used only for material needed to meet an operational deadline or repair inoperative machinery or equipment. The type of emergency shall be specified.

(2) *Overhaul*: to be used for material necessary for projected overhauls or repairs.

(3) *Routine*: to be used for material required to fill allowances or build up stock levels.

(*c*) The latest date on which delivery is acceptable.

(*d*) If the requirement to be met by the requisition is nonrecurring, a statement to that effect should be made.

(*e*) Whether other requisitions for the same material are currently outstanding. If so, information regarding the other requisitions and their current status shall be supplied.

(*f*) Whether part shipment (with the balance to be shipped as soon as available) is acceptable.

(*g*) Whether an adequate substitute is acceptable in the event that the requisitioned material is not in stock.

(*h*) The quantity of each item on hand and required.

(*i*) If the material requisitioned is a machinery or equipment item, include:

(1) Manufacturer's name (if a division or separate plant of a corporation, state complete name).

(2) Manufacturer's model or type designation, catalog number, part number, drawing and piece number or other identifying manufacturer's number. Where the machinery or equipment is identified by a Navy assigned number, include the model or type designation, stock number, plan and piece number or other identifying Navy number.

(3) Manufacturer's serial number (extremely important).

(4) Complete nomenclature or description, including physical, mechanical, electrical or other characteristics, such as size or dimensions, capacity, pressure, voltage, current (AC or DC), type of service, and so forth.

(*j*) If the material requisitioned is an accessory or assembly (or part of one) attached to a machinery or equipment item, the information listed in (*i*) above should be included for both the accessory or assembly and the machinery or equipment to which it is attached.

(1) For example, if an electric motor is required, include not only the information required for the motor, but also the information required for the pump or other machine that is driven by the motor.

(*k*) If the material requisitioned is a spare part, include:

(1) The information listed in (*i*) above for the machinery or equipment item of which it is a part.

(2) Complete nomenclature or description of the part; the wording used in Navy catalogs or manufacturers' parts books should be used whenever possible.

(3) Manufacturer's part number. If the manufacturer's part number is not available, include the Navy plan and piece number, or the manufacturer's drawing and piece or other identifying number. In the case of minor landing craft hull spare parts, include the hull parts numbers assigned by Naval Supply Depot, Mechanicsburg.

(*l*) If the material requisitioned is not a machinery, equipment, or spare part item, include:

(1) Manufacturer's name.

(2) Complete nomenclature or description, including physical, mechanical, electrical, or other characteristics such as kind of material, size or dimension, type of service or purpose for which intended, capacity, pressure, voltage, current and so forth.

(3) Navy or manufacturer's identifying number, such as model or type designation, stock number, drawing or plan and piece number, specification title and number, serial number, original contract number and so forth.

(*m*) Requisitions for minor landing craft hull spare parts which cannot be identified by part numbers assigned by Naval Supply Depot, Mechanicsburg, should include the builder's name, and the serial or hull number for each craft for which material is required.

1409. Responsibility for Information, and Sources

Department heads are responsible for furnishing supply or stores officers with the information listed above. The information required in (*i*), (*j*), (*k*), (*l*), and (*m*) above is usually obtainable from one or a combination of the following sources:

(*a*) Bureau of Ships Allowance Lists.

(*b*) Advanced Base Initial Outfitting Lists.

(*c*) Nameplates.

(*d*) Manufacturers' and Navy handbooks, manuals and parts books.

(*e*) Plans.

(*f*) Machinery indexes.

(*g*) Major landing craft cross indexes.

(*h*) Minor landing craft hull parts lists prepared by Naval Supply Depot, Mechanisburg, for LCM(2), LCM(3), LCM(6), and for LCP, LCV, LCP(R), and LCVP.

(*i*) Navy (leaflet) and standard specifications.

(*j*) Original procurement contracts or purchase orders.

1410. Supplementary Information

Where material cannot be positively identified by the inclusion of the manufacturer's name and an identifying number, designation or specification, include:

(*a*) A complete description of all physical, mechanical and electrical or other characteristics.

(*b*) The purpose or type of service for which the material is intended.

(*c*) Sketches, drawings, photographs, samples or other supplementary data.

Inasmuch as there is only a limited amount of space available on the face of requisition forms, it is requested that, when additional space is required, the blank space on the back of the forms be utilized to insure that the additional information stays with and is identified as an integral part of the requisition.

1411. Return of Old Material

Whenever feasible, if difficulty of identification is anticipated, damaged or wornout equipment and parts should be turned in at the time of requisitioning new material, as this can insure positive identification.

"I hope we don't get stuck here as occupation troops."

Chapter XV

BUREAU COGNIZANCE

1501. Depots and Methods of Supply

Before going out to an advanced base it is well to become familiar with the abbreviations for the various established depots and methods of supply, and their definitions. The following list is submitted for general information:

BUDOCKS ACTIVITIES

(*a*) *ABCD — Advanced Base Construction Depot.*—This is a supply point in the theater of operation for material under the cognizance of the Bureau of Yards and Docks. It is under the control of the Area or Base Commander. An ABCD may also include an ACERD or an ACEPD, or both.

(*b*) *ACERD — Automotive and Construction Equipment Repair Depot.*—This is a complete overhaul depot for automotive and construction equipment. Usually it functions in conjunction with an ACEPD and may also be a part of an ABCD. In any event, it draws upon an ACEPD for parts required for overhaul operations.

(*c*) *ACEPD — Automotive and Construction Equipment Spare Parts Depot.*—This is an advanced base depot stocking spare parts for automotive and construction equipment. It obtains and replenishes its stock of spare parts from the Central Spare Parts Warehouse (CSPW) at Joliet, Illinois. An ACEPD may be a part of an ACERD or an ABCD.

BUSHIPS ACTIVITIES

(*a*) *AFP — Automatic Flow Plan.*—Briefly, this plan was inaugurated by BuShips late in 1943 to provide an automatic flow of critical parts for internal combustion engines in ships and landing craft operating in overseas areas. Requirements under this plan are computed on the basis of the ICE (Internal Combustion Engine) population in a particular area. The parts are shipped to an SPDC servicing the area (see below). Shipments are made monthly on the basis of one twelfth of the computed annual requirement for engines in the area. For the first six months after an engine has been added to the AFP, a factor of 100 per cent is added to the monthly flow of parts for that model in order to build up a six-month stock at the SPDC.

In the event that ships or shore activities are shifted from one area to another, the pro-rata stock of ICE parts is to be moved from that SPDC to the one that serves the new area.

(*b*) *SPDC — Spare Parts Distribution Center.*—This is an area control agency for BuShips spares. It has the dual responsibility of filling requisitions from stocks of material it carries for that purpose (including ICE spares under AFP); and of expeditiously transmitting requisitions for materials not stocked, to issuing points designated by BuShips. The local flow of requisitions within an area is under control of the Area Commander. An SPDC is operated by Supply Corps officers and personnel and is usually a part of an NSD.

NSD Mechanicsburg, Pennsylvania, is the SPDC for continental United States, including Panama Sea Frontier, Bermuda and the Canadian Coastal Zone, Atlantic.

(*c*) *Sub-SPDCs.*—To provide the Fleet with better service, sub-SPDCs have been established in certain areas, notably CenPac and SoPac. Details of these have been published by the Area or Force Commanders concerned, under whose cognizance they come.

BUSANDA ACTIVITIES

(*a*) *BBB — Loads.*—A BBB load (2400 measurement tons when crated) consists of the following:

(1) General Stores — 5000 items of material in common use by all Naval activities.

(2) Ship Stores Stock — sufficient for 10,000 men for 60 days; includes fountain and laundry items.

(3) Clothing and Small Stores — sufficient for 10,000 men for 60 days; excludes blue and white uniforms.

An AKS (General Stores-Issue Ship) carries one BBB load when stored ready for issue, and can carry two BBB loads when crated and packed for overseas shipment.

(*b*) *NSD — Naval Supply Depot.*—This is an activity set up for the support of the Fleet and Naval activities in the surrounding area. It stocks and issues all material used by the Navy with the exception of such material as may be carried and issued, at the direction of the Area Commander, by special activities such as ABCDs, ACEPDs, SPDCs, Ordnance Annexes, and Medical Supply Depots.

All materials requests not directed to be sent elsewhere by the Area Commander are forwarded to the nearest NSD for issue. In those cases where the NSD is unable to supply the requested material from stock, it forwards the requisition to the proper supply activity for such material.

BUORD ACTIVITIES

The purpose of ordnance material and men at advanced bases is to service the guns and ammunition of the forces afloat and in the air, and sometimes to provide base defense. Advanced Base Ordnance is charged with:

(*a*) Maintaining large and small caliber Navy guns ashore and afloat.

(*b*) Maintaining and repairing small arms such as 20 mm., 50 and 30 caliber and personnel arms.

(*c*) Maintaining and issuing ammunition for all guns, small and large, rearming and re-fusing when required, reloading with powder and charges, keeping the ammunition serviceable, storing it, handling it and in general governing its handling.

(*d*) Maintaining a magazine of chemical ammunition, including gases.

(*e*) The disposal and rendering safe of all types of bombs, projectiles, land mines, booby traps and associated munitions.

(*f*) The disposal and rendering safe of all kinds and types of sea mines.

(*g*) The overhauling, maintaining, recharging and checking of all torpedos, sea and air type.

(*h*) The rearming and maintenance of all aircraft ordnance equipment, including carrying spare parts and replacements for shore and carrier-based planes.

(*i*) Maintaining and repairing all fire control and optical equipment.

(*j*) Calibrating and checking all degaussing equipment.

(*k*) Overhauling and repairing bombsights and automatic pilots.

All of the above require the operation of magazines, dumps, depots, and all necessary vehicles and equipment for the efficient completion of the job.

OTHER ACTIVITIES

Special supply activities under the cognizance of BuAer, BuMed, and BuPers are treated elsewhere in this Manual.

Plane personnel boat.

SMALL

LCVP.

LCM.

BOATS

Picket boats.

Chapter XVI

AVIATION MAINTENANCE

1601. Scope of Aviation Maintenance at Advanced Bases

Types of maintenance at advanced aviation bases may be divided by function into four main groups of activities:

(*a*) Operations
(*b*) Line maintenance
(*c*) Repair and overhaul
(*d*) Supply

(a) OPERATIONS

Administration and operation of airfields, airstrips or seaplane landing facilities are usually performed by Acorns. An Acorn, without a CASU, includes sufficient trained personnel to maintain the runway and aviation facilities in operating condition; to service casual planes; to operate the control tower, field lighting, aerological unit, communication, supply, disbursing, ordnance, transportation and medical facilities; and to maintain berthing and messing facilities to be used by the CASU and aircraft squadron crews when they report aboard. The Acorn has a Construction Battalion attached to it, to build the airfield and necessary structures. It is also provided, usually in a later echelon, with a Construction Battalion Maintenance Unit (CBMU) to maintain the base after the initial establishment is complete and the Construction Battalion has been withdrawn.

(b) LINE MAINTENANCE

Line maintenance is performed by CASUs or PATSUs. (Most of the former PATSUs have now been converted into CASUs.) When an advanced base is established, a CASU, which is a trained shore-based Combat Aircraft Service Unit, comprises a part of the Advanced Air Base Assembly. Its mission is to provide maintenance, repair and overhaul facilities for one or more shore-based air groups or squadrons composed of carrier type planes, two-engine bombers, four-engine bombers or a combination of groups or squadrons of different types.

The CASU and Acorn together constitute a team. The CASU services the aircraft and the Acorn provides and maintains the base and its facilities. The closest cooperation and harmony of working relations between the two is essential. After the initial stages of base construction are completed the Acorn is frequently, but not always, decommissioned and absorbed into the base. The CASU, however, is a permanently commissioned unit, and remains in commission throughout its period of service as a functioning Naval activity.

(c) REPAIR AND OVERHAUL

Major repair and overhaul of aircraft, engines and accessories are performed at a major air base established to serve a number of forward area or combat area bases. The unit performing this function may be either an AROU (Aviation Repair and Overhaul Unit) or an ARU (Aviation Repair Unit), depending upon the size of the aviation activity served. Classification of repair and overhaul activities is as follows:

CLASS (A). Facilities as required for major overhaul, major repair, interim overhaul, reconditioning, modification and test of airframes, engines and accessories. All lesser categories are included.

CLASS (B): Facilities as required for major overhaul, modification and test of engines and accessories. Facilities for major repair, modification, routine upkeep and servicing of airframes. (Major overhaul, reconditioning and interim aircraft overhaul will not be scheduled except by specific Bureau authority.) Facilities for overhaul of instruments are not usually provided.

CLASS (C): Facilities as required for minor repair and routine upkeep of airframes and accessories. Facilities for effecting modifications of a minor nature.

CLASS (D): Facilities as required for the servicing and routine upkeep of aircraft.

(d) SUPPLY

The aviation supply system is largely under the

Airplane rescue boat of H10–C Component.

control of the Fleet Air Force Commanders and the Subordinate Type Command Representatives. It operates through Aviation Supply Depots, Aviation Supply Annexes, Aircraft Repair Ships and the Supply Departments of carriers. Details of the complete system and its operation are contained in the booklet *Pacific Aviation Supply System* (ComAirPac, November, 1944), and supplements with amendments, consisting of procedures currently in effect in each sub-area in the Pacific.

The following paragraphs, abstracted and paraphrased from this publication, briefly describe aviation maintenance in relation to supply.

1602. Air Force Commanders

In addition to responsibility for directing and coordinating the Aviation Supply System in their areas, ComAirPac and ComAirLant control all critical aeronautical materials (espares items), Section B (airframe) and Section C (engine) parts, airborne radio and radar equipment, and other miscellaneous items from the time they become available at continental distributing points until issued for final consumption.

The Air Force Commanders prepare:

(a) Espares lists — critical aeronautical items to be Fleet-controlled.
(b) Directives as to distribution of stocks of controlled items.
(c) Recommendations as to designation of supply points in forward areas.
(d) Instructions to subordinate commands relating to control of critical aeronautical spares.

1603. ComAirPac Subordinate Type Command Representatives (CAPTRs)

Generally speaking, the supply functions of ComAirPac Type Command Representatives are largely those of liaison, coordination and overall direction in areas physically removed from the Air Force Command. Each Type Command Representative has a Staff Supply Officer who represents the command in aviation supply matters and whose principal duties are:

(*a*) To direct control of the distribution of aeronautical materials.

(*b*) To issue directives on supply policies and procedures within the area, and to insure compliance with them. These directives include:

(1) Organization and responsibility of Aviation Supply Depots and Aviation Supply Annexes.

(2) Procedures for stock replenishment.

(3) Procedures for routing and screening requisitions.

(4) Procedures for maintenance of adequate stock and inventory records.

(*c*) To exercise general supervision over the Depots, Annexes and other operating supply activities within the area of their command.

(*d*) To make studies of special problems with a view to testing and validating current policies, procedures and the information on which they are based.

(*e*) To report to the Air Force Commander on problems, trends, and supply matters generally.

1604. Operating Aviation Supply Activities

The operating aviation supply system in advanced areas is based on several different types of storage and issue facilities. There are shore-based Aviation Supply Depots (ASDs) and Aviation Supply Annexes (ASAs) and their equivalents in the form of mobile storage vessels. The Depots serve as major supply points for an entire area, and exercise primary control in the area over requisitioning of materials. The Annexes operate with limited jurisdiction in a sub-area, and serve as local control agencies. In addition, there are the Supply Departments of the Carriers and Tenders; and of the Aviation Service Units, including CASUs, PATSUs and HedRons serving shore-based aircraft.

1605. Aviation Supply Depots (ASDs)

Aviation Supply Depots follow as nearly as possible the standard organization of a supply department ashore. They usually obtain their stocks by direct shipment from the continental United States. Their chief functions are:

(*a*) To furnish aviation material to Aviation Supply Annexes within a given area, Aviation Supply Ships, units of the Fleet, Naval Air Bases, independent aircraft squadrons and other aviation activities.

(*b*) To dispose of excess material and to return damaged spares and engines to overhaul bases for repair.

(*c*) To screen requisitions from dependent activities.

1606. Aviation Supply Annexes (ASAs)

Aviation Supply Annexes ordinarily have a specific mission tailored to the job assigned. Generally, however, their chief functions are the same as the Depots, but on a smaller scale and within a more restricted area. They normally get their stocks of materials from the nearest ASD.

1607. Aviation Supply Ships and Barges

The Depots and Annexes have been augmented by the placing in service of several Aviation Supply Ships and Barges designed to serve as floating issue and storage facilities for aeronautical materials. These ships and barges are now deployed in forward areas, and are equipped and stocked to replenish aviation items for both carrier-based and land-based aviation units.

1608. Retail Aviation Supply Activities

The ASDs and ASAs and the Aviation Supply Ships and Barges are wholesalers of aeronautical materials. Their customers, the supply departments of carriers and advanced base aircraft service units, are the retailers and thus the units most closely associated with ultimate consumption. These latter are the activities that actually "keep 'em flying," and it is here that the ultimate success or failure of the whole system of supply is determined.

1609. Requisitioning Control and Distribution of Aeronautical Materials—The "BRR" System

Because the supply of aviation items ranges from just barely adequate to critical, and because shipping problems further complicate supply, it is impossible to divorce control of issues from requests for materials or from the basic data needed to relate these two functions. Stocks of aeronautical materials are not sufficient to meet all requests and so each request must be "screened" in the light of available supply and of the control policies established to conserve stocks. Moreover, specific data as to what items are used most are essential for proper procurement and for the stocking of major supply points.

In order to relate requisitioning to the availability of materials and to provide at the same time essential usage information, a single system of requisitioning-reporting known as the "BRR System" (Section B Report and Requisition Forms) has been devised. BRRs are essentially requisitions, yet they serve as well to report stock quantities on hand at operating

supply activities, and to report usage rates. Each aviation supply activity in the Pacific submits a BRR each month or two months, depending on its size and the directives of the cognizant CAPTR.

1610. Critical Items

In order to achieve effective control of those items of aeronautical material so scarce as to be actually insufficient, frequent reports of stock status and issue rates of such items must be made and analyzed. These reports are in addition to the BBRs. The Aviation Supply Depots are required to report every two weeks on these critical items to a central controlling and rationing agency, by whom such items are designated. Items in addition to those designated "critical" may be added to the list if they are, in fact, critical in the area reporting. ASAs and individual aviation activities make weekly reports to the CAPTR, based on lists issued by him.

1611. Channels of Supply

The channels through which requisitions are routed and filled depend upon origin of the request, whether it is urgent or routine and whether it is Fleet-controlled or non-Fleet-controlled.

(*a*) *Fleet-Controlled Materials.*—Routine Requisitions from an individual activity (Carrier, CASU etc.) are submitted to and filled by the supply point designated by the CAPTR serving that particular activity.

From an Aviation Supply Annex, they are submitted to its major supply point (Aviation Supply Depot) and filled by that activity.

Aviation Supply Depots send these requisitions to a continental-based central controlling and rationing agency, where they are approved or adjusted and approved, after which they are filled from the continental distributing point for the theater. Direct shipments from the continental United States to the forward area are made in filling these requisitions. On the west coast, ComFairAlameda is the central controlling and rationing agency, and ASA Oakland is the continental distributing point for the Pacific.

Urgent Requisitions (usually interim) are submitted by despatch or air-mailgram from an individual activity to the major supply point in the area, with copies to the CAPTR and also to the minor supply point providing routine service to the activity, if any. The minor supply point will fill the request if it has the materials.

ASAs submit urgent requisitions to the major supply point in the area, with copies to the Area Commander.

(*b*) *Non-Fleet-Controlled Materials.* — Routine requisitions are processed in the same manner as for Fleet-controlled items, with the exception that major supply points (ASDs) requisition directly from a continental distributing point, without clearance through the central controlling and rationing agency.

Urgent requisitions are controlled in the same manner as those for Fleet-controlled materials.

1612. Integrated Aeronautic Maintenance Material and Supply Program

In the forward areas, combat aircraft in active service in a commissioned unit eight months or more, depending on type, are considered due for retirement from combat operations and are replaced by new aircraft. Carrier type aircraft thus retired and in good usable condition are returned to the United States for reconditioning and continued service for training purposes and fleet commands within the continental limits, for an additional period of additional life averaging twelve months.

Combat aircraft structurally damaged or determined unfit for continued use without extensive repairs or major overhaul are reported for striking and when stricken are immediately salvaged for usable components. In salvage operations particular emphasis is placed on those parts for which there is current or anticipated need in the area, and on those that have been designated as critical. The salvage operation and the receipt and custody of spare parts thus obtained comes under the jurisdiction and within the responsibility of the Aviation Supply Officer of the activity.

Material thus salvaged is immediately available for re-issue, and the aircraft are stricken and scrapped. Excess accumulated stocks are inventoried and reported for instructions as to further disposition.

Chapter XVII

WHAT A BASE CAN DO TO MAINTAIN ITS MATERIAL

1701. Storage and Preservation of Material

Efficient functioning of a base requires preservation of stores. Experts have perfected packaging methods to prevent or reduce deterioration due to the elements. The best packages, however, are still not substitutes for careful storage and handling at all times.

Detailed instructions for the storage and preservation of material are to be found in Section II, Part 5 of the *Federal Standard Stock Catalog*. However, problems are encountered at advanced bases that were not contemplated when those instructions were written. The primary considerations at most advanced bases are:

(*a*) To keep supplies out of the mud.

(*b*) To protect them from rain, sun, and wind-blown dust.

1702. Stacking Off the Ground

Effort should be made from the beginning to stack all supplies on dunnage rather than on the ground. Excess pallets may be utilized for this purpose. When huts or buildings are provided in the tropics, they should be constructed so that they are approximately twelve inches off the ground. Care must then be taken not to load them beyond the supporting power of their foundations, nor to the point of warping their floors.

1703. Use of Tarpaulins

Tarpaulins will always be in heavy demand. They have proved of great value, particularly in initial landings at advanced bases when tons of stores coming off ships must be placed in open storage, and tarpaulins are the only possible means of protection until adequate warehouses can be built.

In order to get the best results, tarps must be pulled taut and secured with lines in such a way that pools of rain water will not collect. These pools of water become breeding places for mosquitos and, furthermore, the canvas, as well as the supplies to be protected, will soon deteriorate if the water is allowed to stand.

The Storage Officer should make routine inspections to see that tarps are secured. Side tarps should be stretched first, keeping the bottom edges off the ground; then the top tarp should be spread so that the best possible drainage is had. One method employed to secure good drainage is to stand a board under the top tarp at a slight angle.

Tarps should be used only as a temporary measure. If material is allowed to stand too long under them, the rain and other weather conditions will eventually cause damage and deterioration.

If tarps are left lying around they soon rot, become torn, or get lost. They should be gathered after each use, dried, rolled and made ready for reissue. Keeping them all in one warehouse saves much time and trouble when they are needed in a hurry.

1704. Lean-to Shelters

A lean-to shelter may be constructed for outdoor storage by stretching a tarp over a wooden framework that can be placed directly on the stacks of supplies or supported by uprights. The construction of the framework varies according to the particular need. The framework should clear the sides of the stacks to prevent rain from running down them.

The lean-to is simple in design and construction, movable and adaptable. It prevents rain and direct rays of the sun from entering stacks of supplies, and permits the maximum escape of hot air at the top of the stacks while allowing free circulation of air on all sides and between stacks. It is estimated that the circulation of air derived from this device reduces the temperature of provision stacks by about fifteen degrees Fahrenheit.

"Now let's get organized, Jones. Your first detail will be to set up an officers' mess."

Tentage placed directly over provisions must never completely cover the sides. Complete covering traps hot air within the stacks, causing cans to sweat and rust and their contents to spoil.

1705. Canned Goods and Gases

Labeled canned goods must be protected from the rain so that the labels will not be washed off. Gas containers must be stored so that they are protected from the continuous direct rays of the sun, or from accumulations of ice or snow. They should not be stored near highly inflammable substances such as gasoline, oil or waste.

1706. Petroleum Products—Drum Storage

In combat areas, drums of petroleum products should be upright, so that if subjected to enemy action they will explode into the air rather than into the surrounding storage area. In other areas, however, they should be stored on their sides, facing down.

1707. Tools

All BuDocks tools are packaged in waterproof wrappings at the Central Spare Parts Warehouse in Joliet, Illinois. Care should be exercised to prevent the wrapping being damaged in handling; the wrapping should not be removed until tools are needed for use. Tools in use should be cared for as specified in the various maintenance publications furnished to all activities.

1708. Rust Prevention

Several grades of a rust preventive compound are provided by BuShips as a part of many initial outfitting lists. This compound, known as Thin Film Rust Preventive (Polar Type), is particularly adapted for the preservation of tools, machinery, engines and instruments. Its use before shipment saves time at the destination. Its further use at the base is necessary to preserve the equipment from deterioration.

Because of its peculiar qualities, the unit or machine may be put into operation without cleaning off the compound.

To accomplish the purposes required, there are three grades, all of which are normally provided:

Grade 1 (Tectyl 506) is used for the preservation of exterior surfaces of equipment exposed to weather. This forms a dry film about .0018 inch thick, and is soluble in lubricating oil.

Grade 2 (Tectyl 502) has general use, but primarily in the interior of engines, tools, lubricating and fuel systems, bearing surfaces, governors and so on. Aboard ship it is used for the preservation of all machinery below decks, both interior and exterior surfaces. It forms a nondrying film about .0006 inch thick and is soluble in lubricating oil.

Grade 3 (Tectyl 511) is designed primarily to remove water from wet metal and to provide a protective coating in substitute. It is used on the steam or water side of machinery, water jackets of gasoline and Diesel engines, and in similar locations for the purpose of displacing water and preventing corrosion when the equipment is temporarily taken out of service. It emulsifies with excessive water or steam and is consequently so removed. It forms a nondrying film about .0004 inch thick and is soluble in lubricating oil.

Chapter XVIII

UTILIZATION OF LOCAL RESOURCES

1801. Local Opportunities at Advanced Bases

Local resources can provide a large amount of support to advanced bases. The nature and quantity of benefit to be derived varies from practically nothing in barren, uninhabited areas to practically all needs in highly developed countries. Commanding Officers and Supply Officers can help morale, provide better food and living conditions, expedite work, and do much to relieve the strain on United States resources and shipping, if maximum advantage is taken of local labor, foods and materials.

1802. Labor

Labor is an obvious potential resource in any populated area. There are, however, tremendous differences in the value of different natives to Naval activities. These differences result both from differences in the character and culture of the peoples concerned and also from differences in their past and present treatment by Americans. It is important to be familiar with local religious and social customs and holidays, and with eating, clothing and working habits. A knowledge of the language is often of much help. In many parts of the world, all contact with laborers is through headmen. In these places, care must be taken not to embarrass or antagonize these headmen if their gangs are to perform to the best advantage. Natives are often far more skillful than Americans at certain specialized tasks. For example, the Kru boys in Liberia landed supplies safely through the surf, while Americans were swamping their boats. Also some natives learn new skills with surprising ease, like the Papuans who were operating bulldozers, jeeps and other equipment a few days after seeing these things for the first time. It is of great importance to discover and make use of such labor opportunities.

Much use may be made of prisoners of war to alleviate labor shortages, but such use must be in accordance with the terms of the Geneva Convention. Any question as to the restrictions imposed by the latter should be referred to cognizant authorities.

1803. Food

Food can be obtained locally in all but the most inhospitable or barren areas. Fish, fruits and native foods are usually available immediately, at least in small quantities, to be bought with whatever serves as legal tender locally. Alert commissary personnel will take advantage of all local food opportunities, by finding out what is edible, its dangers and limitations as food for Naval personnel and its possibilities in menus. In this connection it is well to remember the great extent to which diet and taste are acquired habits. There are evidently limits to the adaptability of Americans to strange foods, but many apparently distasteful items can be used to advantage if care is taken in their handling, and experiments are carried on to discover the most palatable ways of serving them. It is as true at an advanced base as on shipboard that morale depends largely on food.

Gardening has been developed in order that as many fresh vegetables as possible may be grown locally. Since such produce is among the most difficult to ship successfully and is in the utmost demand for issue to both Fleet and advanced base personnel, the importance of initiating such projects cannot be overemphasized. Many difficulties have been met in the successful cultivation of large vegetable gardens in some of the areas where bases have been established, but those difficulties have been largely overcome. Due to climatic and soil conditions it is often possible to raise many crops in the same year, and the consequent saving of shipping space and general benefit to the bases having such projects is very great.

1804. Other Local Resources

Other resources will depend on the locality. Wood and other construction materials are widely available,

but they also are valuable only if used properly and within local limitations. Public works officers can learn much from native methods of building — for example, pise in Africa, and bamboo or nipa shacks in the Pacific. Local handicraft has in some places provided much excellent furniture. By intelligent exploitation of local resources the mission of the base may be more easily attained and, at the same time, life be made more comfortable.

1805. Medical Problems in Connection with Local Resources

Many medical problems exist in connection with the use of local labor and foods. In one instance several hundred natives were brought from one island to another to assist in base construction. It was later found that most of them were malaria carriers and constituted such a menace as to be a liability rather than an asset. Foods are a more obvious hazard. The Medical Officer must approve all foods as standard practice (Navy Regulations Art. 1156–9), and his advice should be followed on other matters with medical aspects such as the use of native labor. Medical Officers should study the local situation with care in order not only to maintain health, but also to foster the maximum use of local resources.

1806. Discovering and Obtaining Local Resources

(*a*) *Sources of Information.*—Means of discovering local opportunities and ways of using them vary widely from one area to another. In some places there will be no written records and not even any local residents to guide Naval personnel in these matters. Usually, however, some information will be available in written form to be studied before or after reaching the area. More important than any written matter, however, is the help of inhabitants who know the area intimately and can explain local resources, conditions and customs. In any civilized area the head of the government can help, if he is friendly, both directly and through his subordinates. It is important that friendly relations be maintained with local authorities and advantage be taken of their knowledge and skill in dealing with local opportunities and problems. In backward areas any white man may be of much help. In any area, care should be taken to learn local conditions and customs as a matter of routine, to aid efficiency and good relations and to avoid unnecessary difficulty.

(*b*) *Means of Procuring Local Resources.*—Means of obtaining local services and commodities are as varied as the items themselves. Often money, especially paper money, has no attraction for natives. This lack of interest in money may be found not only in backward areas, but also in areas where commodities are scarce, e.g. North Africa. In these cases the local population may be willing to accept coins, but

Home-made windmill laundry.

Burning Jap installations.

will probably favor trinkets, clothing, cigarettes, chewing gum, tools, knives and a variety of other items depending on the circumstances. The powers of Commanding Officers and Supply Officers to provide useful commodities to local populations are limited. In North Africa and in the Marianas, the U. S. Forces were able to persuade native labor to work by paying cash wages and providing a store where these laborers could buy needed articles, most of which were otherwise unobtainable.

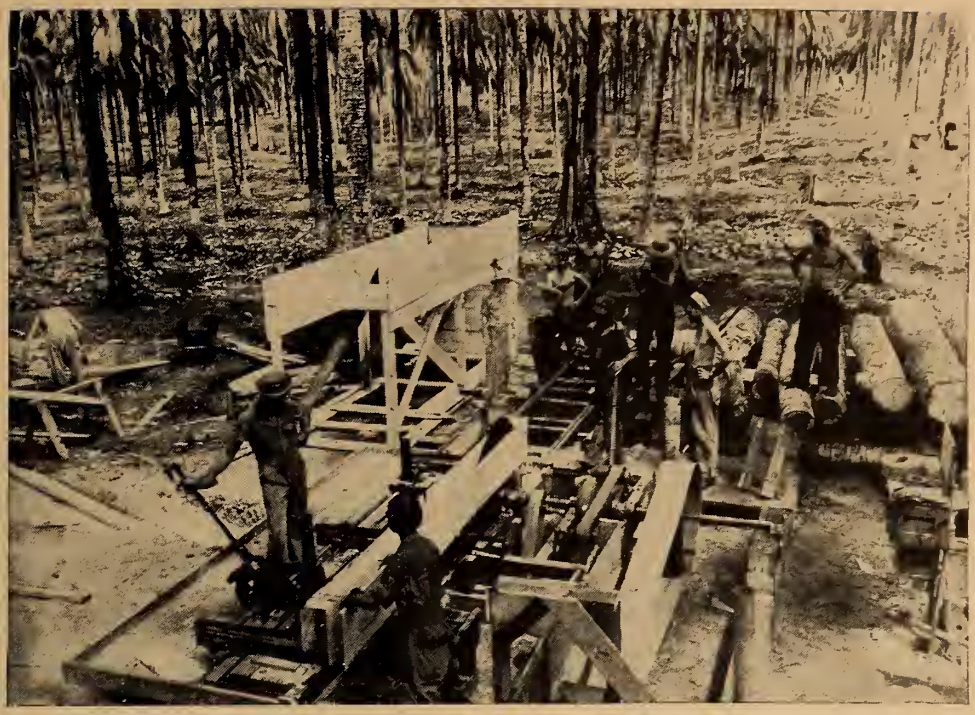
(*c*) *Ship's Store.*—A ship's store ashore (operating under Chapter 16 of the BuSandA Manual, in contrast to a ship's store, which operates under Chapter 15) can sell to civilian employees of the U. S. If SecNav extends authority, a ship's store ashore, or a commissary store, may sell to any person the Commandant or Commanding Officer designates. Articles which may be sold in ship's stores are listed in BuSandA Manual, Article 1520. Additions to this list may be made by SecNav. Supply Officer's and Commanding Officers who find that, to deal with local labor and local suppliers, or for any other valid reason, they need ship's store facilities and powers beyond the ordinary, may request through channels, that:

(1) SecNav approve the establishment of a ship's store ashore, or a commissary store if that is wanted.

(2) Such ship's store ashore, or commissary store, be allowed to sell to other than Naval personnel and other U. S. employees, at the discretion of the Commandant or Commanding Officer.

(3) Additional specified items be added to the list of what may be sold.

(*d*) *Conservation of Ship's Store Stock.*—Whatever powers the Commanding Officer may have with respect to the ship's store, he must remember that the only legitimate basis for disposing of articles procured at home despite wartime scarcities, and shipped despite the shortage of bottoms, is to further the interests of the United States — i.e. to get services, commodities or good will. The purpose of using local resources is to minimize the strain on shipping and United States supplies, while maximizing the welfare and efficiency of the advanced base and its personnel. The Supply Officer has a general and permanent responsibility to purchase locally whenever possible to advantage. He must be careful about reversing this process.



At one base, trouble was encountered sawing logs filled with shrapnel from the naval assault.

1807. Development of Local Resources

In addition to the purchase of any goods and services that are available, there is often much that can be done by Civil Affairs Officers in the way of organizing enterprises using local labor and resources, with or without other labor and materials. Such activity is largely beyond the ordinary functions and powers of a Supply Officer, but another agency of the Government may step in where the Supply Officer's authority stops. In the Pacific the Federal Economic Administration is operating a series of projects. Fishing is being developed using combined native and American methods and gear with supervision by Civil Affairs Officers. Vegetable farms are being started, lumbering is being pushed, special arrangements are being made to provide certain types of consumer's goods to normal trade channels, and local products are being exported to the United States.

1808. Use of Naval Personnel to Obtain Local Products

Naval personnel themselves can do much with local resources directly. Sawmills have been shipped out, so that timber can be cut. Local sand, gravel, coral, and rock will of course be used. In relatively quiet zones it may be possible and desirable to heed the advice of the Japanese manual which instructs base personnel "to utilize spare time from duties to cultivate vegetables and fruit trees, to raise chickens and pigs and so forth, thus giving some ease and interest to your life and supplying some of your own provisions." The recreational value of fishing and hunting parties is obvious. How much activity of this sort can be engaged in depends largely on circumstances. Imagination and initiative will usually find a way to accomplish useful and necessary projects despite what may at first seem to be insuperable obstacles.

1809. Necessity to Avoid Waste

Americans have traditionally been the most wasteful people in the world. Now, however, we are fighting enemies who beat the world at squeezing what they want out of occupied territory. We must husband what we have, not only by avoiding waste, but also by maximum utilization of local resources.

1810. Salvage

It has been noted in the past that a great and important use can be made of salvaged materials. Anyone keeping his eyes open and using his ingenuity can devise schemes for increasing efficiency and comfort, while at the same time reducing the quantity of the things that must be supplied from the United States.

At a base in an advanced area an idle LST that had been torpedoed was made into an "outside repair shop." It was beached bow on, secured, with a permanent ramp connecting it with the shore. A carpenter shop, forge and compass repair shop were built topside. A machine shop, blacksmith shop, electrical shop and battery-charging shop were built below. Thus with a little foresight, what appeared to be just another severely damaged vessel cluttering up the harbor became an important asset to the base. Similarly, a torpedoed Liberty ship was converted into a first-class storehouse at a base where storage space was greatly needed.

A panel truck was built from junked parts as follows: Body and frame, International; motor, Dodge; carburetor, Chevrolet; wheels, four different makes.

A Jap gunboat was raised and put to work for the United States. Many sunken Jap landing craft have been salvaged and are performing various functions at our bases.

Discarded oil and gasoline drums have innumerable uses. One of note is using half sections of the drums for the bottom of drainage ditches where erosion is so great that a regularly dug ditch without reinforcement will not suffice.

An excess supply of large tin funnels was converted into a supply of wash basins. And windmill laundries, constructed from discarded materials at hand, have become so popular in the Pacific that they have been set up wherever a breath of air may stir them.

1811. Planning for Future Comfort

A good point to remember in the establishment and occupation of a new base is that it may be occupied for quite a long time. Therefore, long-term planning is justified when laying out living quarters, roads, driveways, planting of trees and so on. The tropical climate where many of our bases are located is capable of changing a barren, war-torn battle ground into an "isle of paradise" in a very short period of time.

Portable machine shop, included in E9 Component.

Chapter XIX

PILFERAGE

1901. Magnitude of the Problem

The problem of pilferage is one of the most annoying and serious of those interfering with the proper maintenance of advanced bases. It is liable to occur wherever and whenever any material happens to be improperly guarded, from the time it is shipped up to the time it is issued — during loading, while on shipboard, during unloading and while being stored or handled at the base. It is an important cause of confusion in the logistic supply of combat areas.

Pilferage varies in character from the high plane of an unauthorized diversion of government property from its assigned use to another governmental use, all the way down to outright theft. The former, being cloaked in the guise of official procedures, is often committed by people who should know better. It is still pilferage and can be as serious in its results as stealing in the night. (See Chapter I, Par. 105).

1902. Thievery in Handling

Downright stealing of ship's service articles for personal use is the most obvious and probably the most prevalent form of thievery, but many other materials, such as food and gasoline, have been stolen in large quantities. Both service personnel and local civilians have been involved, and their methods are various and ingenious. At one place it was discovered that local labor used in driving, loading and unloading trucks occasionally tossed a case of candy into the bushes along the road between the main ship's service storehouse and the ship's service stores of the various activities. It was found necessary to have an officer or responsible petty officer accompany each convoy of trucks, keeping them together and in sight at all times. At another base, during a fake air alarm, 900 cases of beer were stolen. In France, cigarettes and gasoline were hijacked by the truckload, and then sold on the black market.

An article of interest to Supply Officers and others charged with the custody of material during transit is contained in *The Monthly Newsletter* from the Paymaster General for May, 1944, on page 14. It contains details of several methods used by local labor in stealing materials.

1903. Precautions and Penalties

Constant vigilance in the protection of all material is necessary. It should never be left unguarded where anyone can have access to it. In many places wire screening on base storehouses has been reinforced by wire mesh mats to bar access through the screening. Where cases of pilferage are discovered, the utmost severity must be exercised in dealing with them. Otherwise it is impossible to stamp out. Special squads of trained detectives, drawn from Shore Patrol Components, have been formed and used in some areas to ferret out those guilty of pilferage. Several General Courts Martial have resulted from the efforts of such squads.

Chapter XX

ROLL-UP AND SURPLUS DISPOSAL

DUE to the progress of the war the reason for which an advanced base was originally established may cease to exist in whole or in part. This may mean that the entire base is to be dissolved, or that certain of its functions are terminated or reduced, or that individual items of equipment are no longer needed. Similarly, units or equipment may no longer serve a useful purpose because of obsolescence, depreciation or damage. The immediate consequence of any of the foregoing cases is a problem of disposition of material. The solution of the problem is a matter for determination by the Area Commander concerned, but in general it is likely to follow one, or more, of three courses.

(*a*) *Redeployment or "Roll-Up".*—This is the movement of personnel and material from a base which is to be disestablished, or reduced, to a newer and more advanced base. Such movement usually involves entire units, or large components, though this is not necessarily the case. When an entire component is to be rolled up and dispatched to a more forward base, it will often be sent first to an intermediate staging point for overhaul of equipment, supplying of replacement material, and filling out its complement of trained personnel. Examples of roll-up on a large scale have been seen in the South Pacific and Mediterranean areas and others will follow as the United States forces move forward.

(*b*) *Storage.*—When a base is dissolved or reduced, some material though not immediately required for roll-up has, or will have a continuing use in the area. It may be properly secured and stored at the base in a caretaker status pending a specific need for it elsewhere. On the other hand it may be returned to a Naval Supply Depot for subsequent issue.

(*c*) *Disposition of Excess Material.*—This is material, including scrap, salvage, and waste, which is excess to the reasonably foreseeable needs of the area where it is located, including the needs of the U. S. Army, and so far is not needed in any adjacent area as far as can be determined. The disposition of such material is controlled by Property Directive No. 6 Revision No. 1 distributed as enclosure (A) to CNO restricted letter Op–30–2BR2 serial 29830 of 19 January 1945. This directive applies to Navy-owned surplus material *outside the continental limits of the United States only.* The major points of this directive are briefly as follows:

(1) Bureaus are to prepare lists of critical materials which they desire to control. These are reviewed by CNO who then issues a Consolidated Control List.

(2) Items on the Consolidated Control List are divided into those that are automatically returned to the United States, and those to be reported to CNO for instructions as to disposition.

(3) Disposal of items not on the Consolidated Control List is directed by a Disposal Agency if one is present in the area. These Disposal Agencies are local representatives of the Army-Navy Liquidation Commission. If no Disposal Agency is present in the area the Area Commander is authorized to dispose of such material in accordance with policies set forth in the directive.

(4) The Area Commander designates central points for storage of excess material if it is not practicable to hold it at its original location.

(5) When an Area Commander is authorized to dispose of property he will usually do so through his local supply officer, or the supply officer of the appropriate central storage depot. Those officers will be guided by instructions from the Navy Redistribution and Disposal Administration. In this connection see CNO letter Op–30–2BR2 Serial 125030 of 10 March 1945.

(6) For the purposes of this Property Disposal directive, certain terms are defined as follows:

Property. — All Government-owned material except (1) ships, boats, barges, floating drydocks and (2) real estate and fixed structures with the equipment designed to be used with them.

Scrap.—Property which has no apparent usefulness and is of value only for the material in it.

Salvage.—Property which, in the judgment of the officer authorized to decide, has no recognizable commercial or military re-use value as a unit but which contains usable components. It includes used containers which are still usable.

Waste.—Includes garbage, greases and kitchen wastes, and nonrepairable barrels, boxes, textiles and similar items.

Area Commander.—The senior Naval Officer in command of an area, several areas, a fleet, or subdivision which may be designated by such senior Naval Officer; or the Commandant of a Naval District coming under the provisions of the directive.

Any disposition of material creates problems of dismantling, preservation, storage, parking and transportation. The Bureaus will furnish any necessary instructions concerning the handling of material under their cognizance, but it is expected that the work will be accomplished by personnel and with equipment already in the area. Facilities such as Material Recovery Units, Spare Parts Distribution Centers, Advanced Base Construction Depots and Naval Supply Depots should be utilized to the fullest possible extent. The sending of personnel and equipment from the United States or other points outside the area for special work in connection with such movements of material will not be approved except in circumstances of extreme urgency.

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